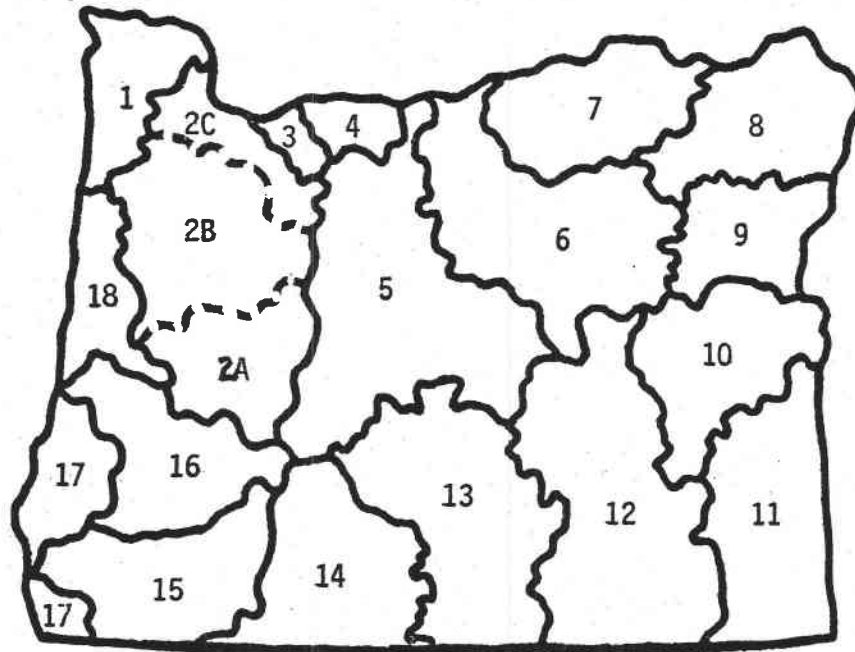


A RESOURCE SURVEY OF RIVER ENERGY
AND LOW-HEAD HYDROELECTRIC POWER POTENTIAL
IN OREGON

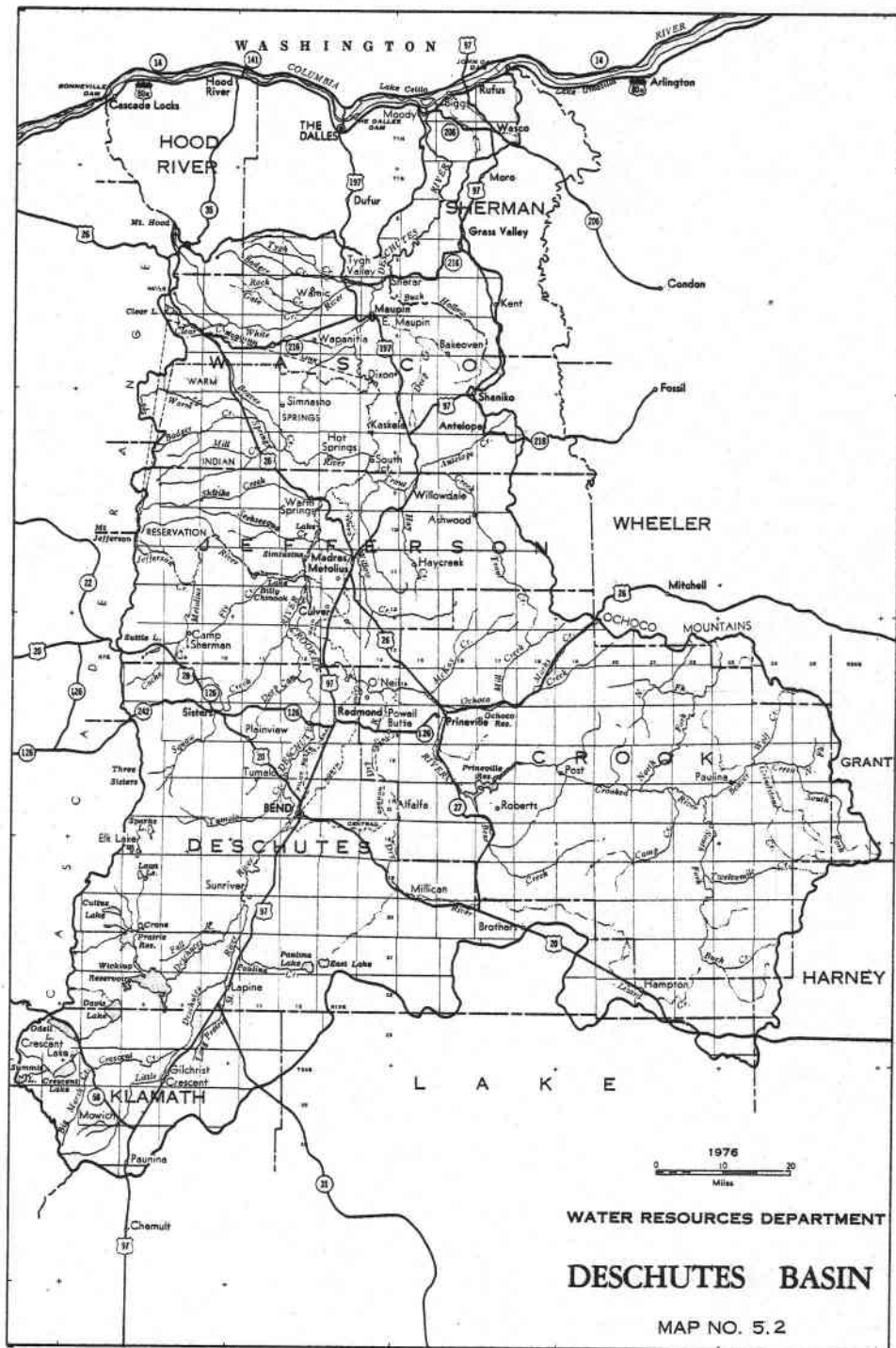
APPENDIX 5: DESCHUTES BASIN



WATER RESOURCES RESEARCH INSTITUTE
Oregon State University
Corvallis, Oregon 97331

INDEX TO APPENDIX 5, DESCHUTES BASIN

Drainage Basin Map	5-ii
Reach Hydro Potential Characteristics Sheets	
Deschutes River Main Stem	5- 1-3, 17, 20-21, 36, 45 50, 82, 92-94, 98-100 114, 117, 120
White River & Tribs.	5-4 to 5-16
Wapanitia Creek	5-18 to 5-19
Warm Springs River & Tribs.	5-22 to 5-35
Trout Creek & Tribs.	5-37 to 5-44
Shitike Creek	5-46 to 5-49
Metolius River & Tribs.	5-51 to 5-69
Crooked River & Tribs.	5-70 to 5-81
Squaw Creek	5-83 to 5-91
Tumalo Creek	5-95 to 5-97
Little Deschutes River & Tribs.	5-101 to 5-113
Fall River	5-115 to 5-116
Cultus River	5-118 to 5-119
Reach Feasibility Analysis Sheets	5-121 to 5-130



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-000-000-R0001

I. LOCATION

A. State	Oregon
B. County	Sherman
C. Township, Range	Sec. 5, T1S, R16R
D. Latitude, Longitude	45° 30' N, 120° 50' W
E. Stream Name	Deschutes River
F. Major Basin Name	Deschutes
G. River Mile	0.0 to 23.0

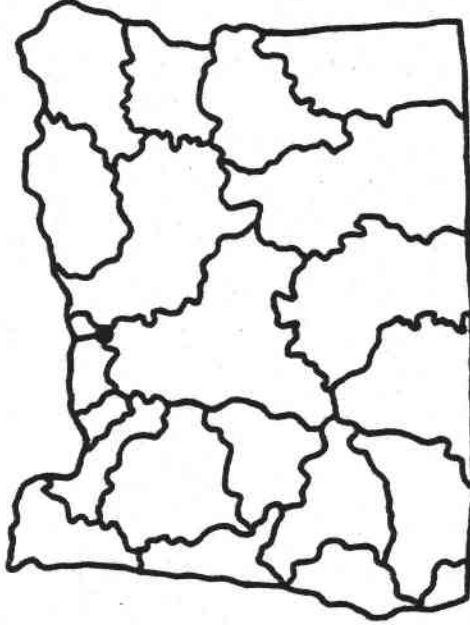
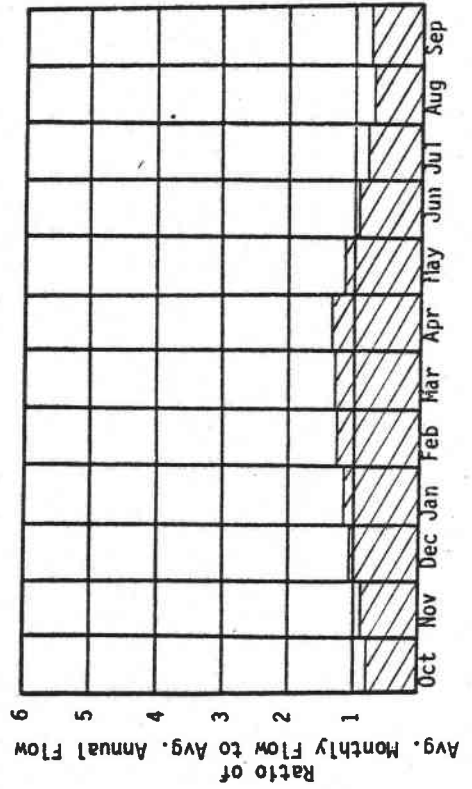
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	435	Ft. MSL
B. Downstream Elevation of Reach	160	Ft. MSL
C. Total Available Head in Reach	275	Ft.
D. Average Slope in Reach	12.	Ft./MI.
E. Drainage Area above Reach Mouth	8428	Sq. Mi.
F. Inflow Classification	Regulated	

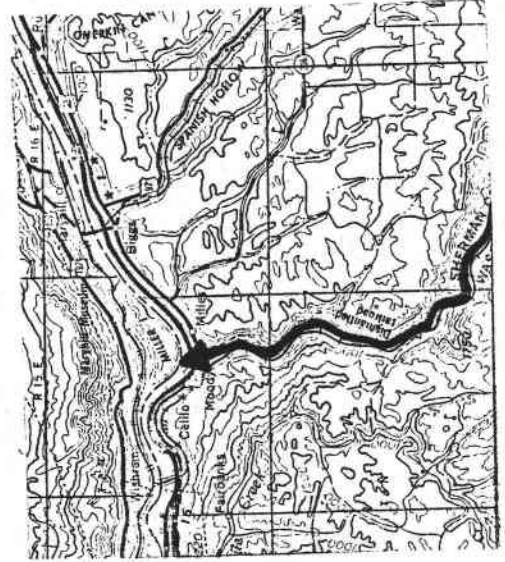
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I PERCENTAGE I	I CFS I	I PLANT SIZE I	I MW I	I GWH I	I ANNUAL ENERGY I	I PLANT I
I 95 I	I 3745.2 I	I 87.28 I	I 764.58 I	I 1.000 I		
I 80 I	I 4318.5 I	I 100.64 I	I 867.01 I	I .983 I		
I 50 I	I 5093.8 I	I 118.71 I	I 969.88 I	I .933 I		
I 30 I	I 5906.1 I	I 137.64 I	I 1036.22 I	I .859 I		
I 10 I	I 7795.6 I	I 181.68 I	I 1113.37 I	I .700 I		

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-000-000-R0003

I. LOCATION

A. State	Oregon
B. County	Sherman
C. Township, Range	Sec. 9, T3S, R15E
D. Latitude, Longitude	45° 20' N, 120° 53' W
E. Stream Name	Deschutes River
F. Major Basin Name	Deschutes
G. River Mile	23.0 to 43.0

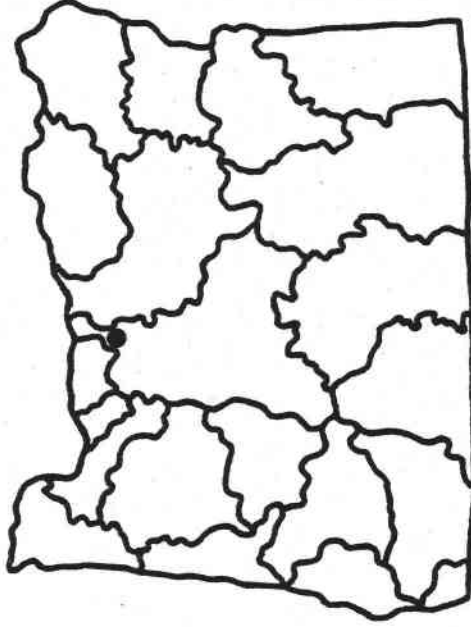
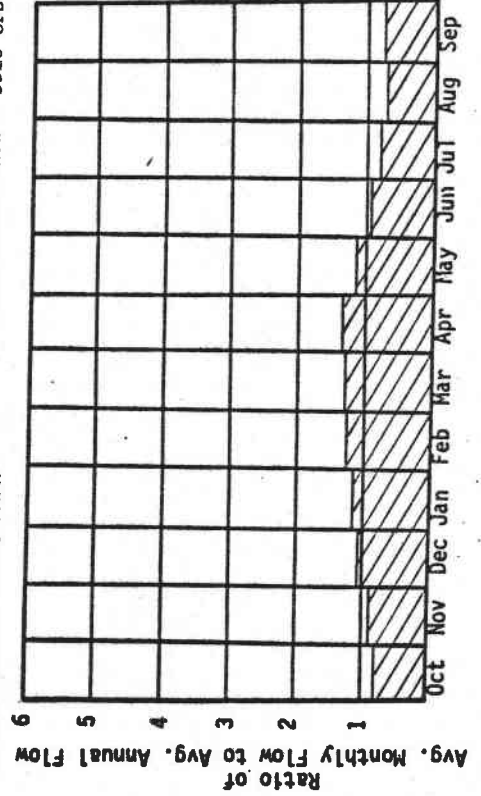
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	688	Ft. MSL
B. Downstream Elevation of Reach	435	Ft. MSL
C. Total Available Head in Reach	253	Ft.
D. Average Slope in Reach	12.6	Ft./Mi.
E. Drainage Area above Reach Mouth	8342.4	Sq. Mi.
F. Inflow Classification	Regulated	

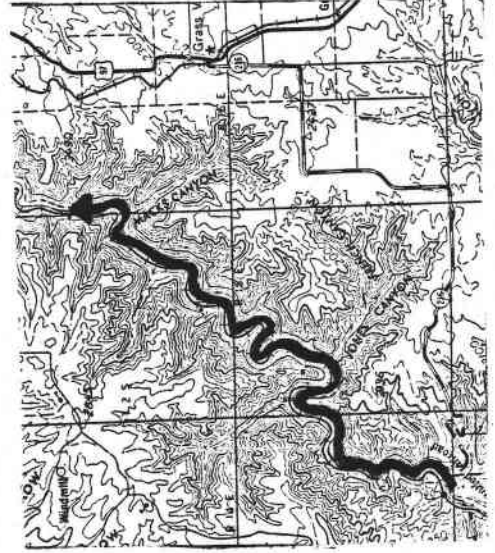
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I I	I THEORETICAL I PLANT SIZE I MW I I	I ANNUAL ENERGY I AVAILABLE I GWH I I	I PLANT I FACTOR I I
I 95 I	I 3740.1 I	I 80.19 I	I 702.47 I	I 1.000 I
I 80 I	I 4312.8 I	I 92.47 I	I 796.59 I	I .983 I
I 50 I	I 5082.8 I	I 108.98 I	I 890.59 I	I .933 I
I 30 I	I 5889.9 I	I 126.28 I	I 951.23 I	I .860 I
I 10 I	I 7769.1 I	I 166.57 I	I 1021.82 I	I .700 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-000-000-R0005

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 3, T4S, R14E
D. Latitude, Longitude	45° 15' N, 121° 02' W
E. Stream Name	Deschutes River
F. Major Basin Name	Deschutes
G. River Mile	43.0 to 46.4

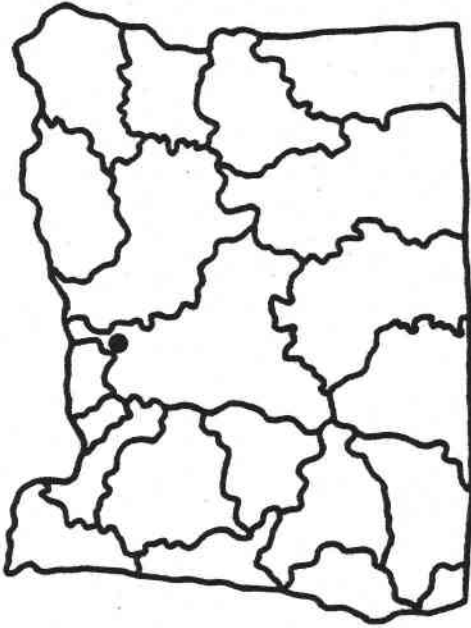
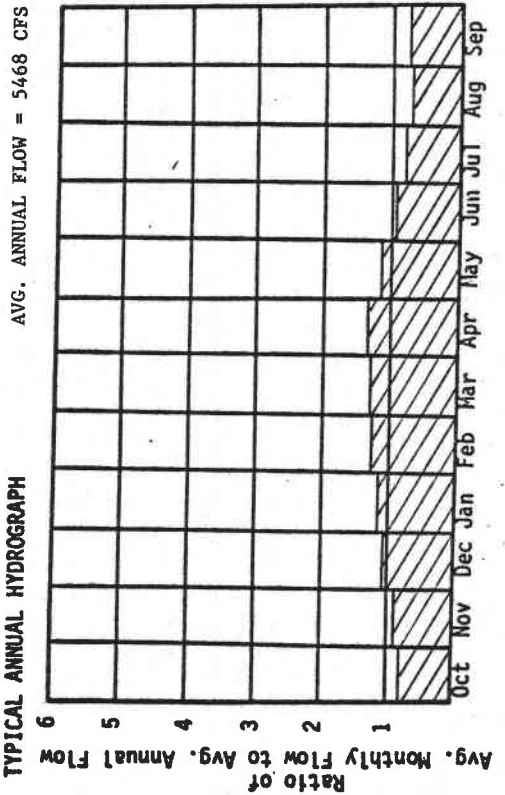
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	747	Ft. MSL
B. Downstream Elevation of Reach	688	Ft. MSL
C. Total Available Head in Reach	59	Ft.
D. Average Slope in Reach	17.3	Ft./Mi.
E. Drainage Area above Reach Mouth	8033.9	Sq. Mi.
F. Inflow Classification	Regulated	

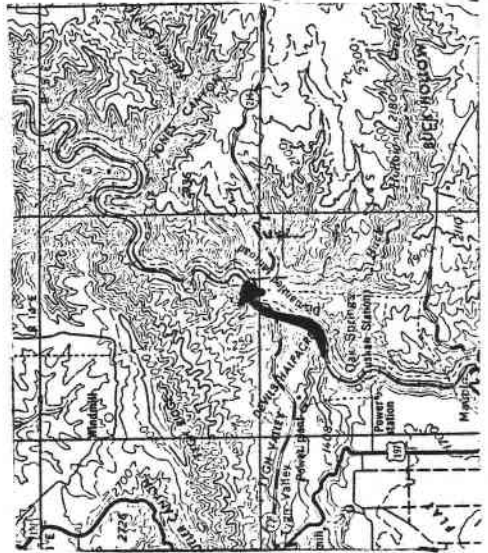
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 3726.5 I	I 18.63 I	I 163.22 I	I 1.000 I
I 80 I	I 4297.3 I	I 21.49 I	I 185.10 I	I .983 I
I 50 I	I 5053.1 I	I 25.27 I	I 206.61 I	I .934 I
I 30 I	I 5846.0 I	I 29.23 I	I 220.51 I	I .861 I
I 10 I	I 7697.4 I	I 38.49 I	I 236.72 I	I .702 I

IV. TYPICAL ANNUAL HYDROGRAPH



U. S. G. S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-000-R0001

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 12, T4N, R14E
D. Latitude, Longitude	45° 15' N, 121° 05' W
E. Stream Name	White River
F. Major Basin Name	Deschutes
G. River Mile	0.0 to 4.9

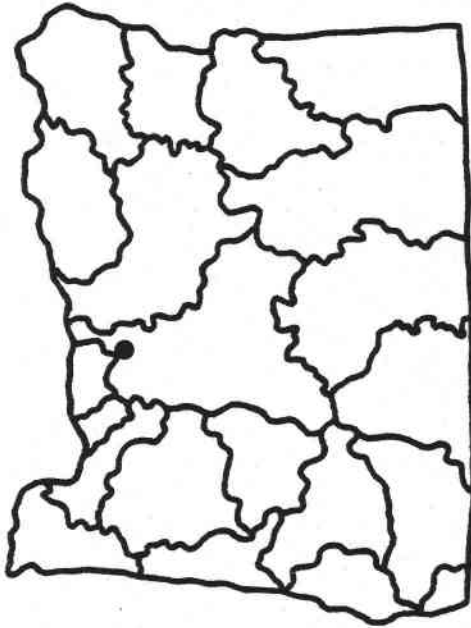
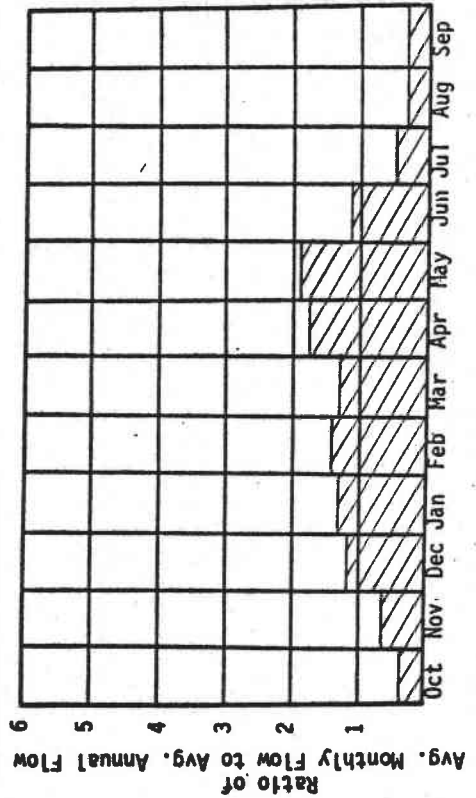
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	1060	Ft. MSL
B. Downstream Elevation of Reach	747	Ft. MSL
C. Total Available Head in Reach	313	Ft.
D. Average Slope in Reach	63.9	Ft./Mi.
E. Drainage Area above Reach Mouth	399.7	Sq. Mi.
F. Inflow Classification	Natural	

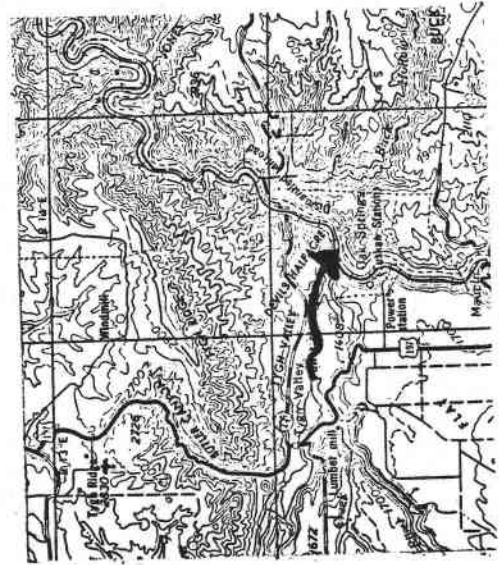
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I CWH I	I PLANT I FACTOR I
I 95 I	I 111.6 I	I 2.96 I	I 25.93 I	I 1.000 I
I 80 I	I 142.8 I	I 3.79 I	I 32.28 I	I .973 I
I 50 I	I 231.9 I	I 6.15 I	I 45.73 I	I .849 I
I 30 I	I 376.1 I	I 9.98 I	I 59.14 I	I .677 I
I 10 I	I 648.5 I	I 17.20 I	I 71.80 I	I .476 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-002-R0001

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 3, T4S, R13E
D. Latitude, Longitude	45°15'N, 121°10'W
E. Stream Name	Tygh Creek
F. Major Basin Name	Deschutes
G. River Mile	0.0 to 4.5

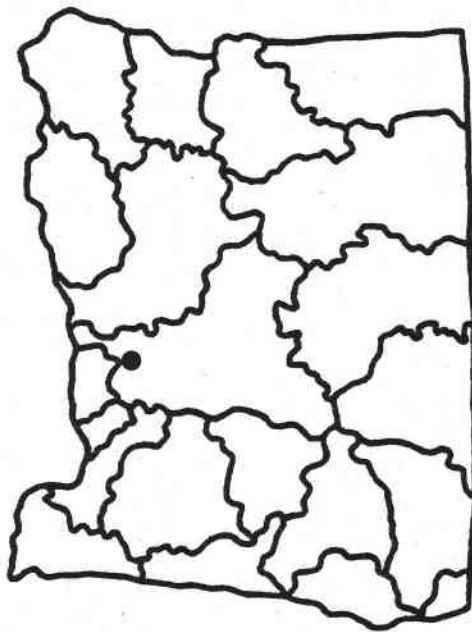
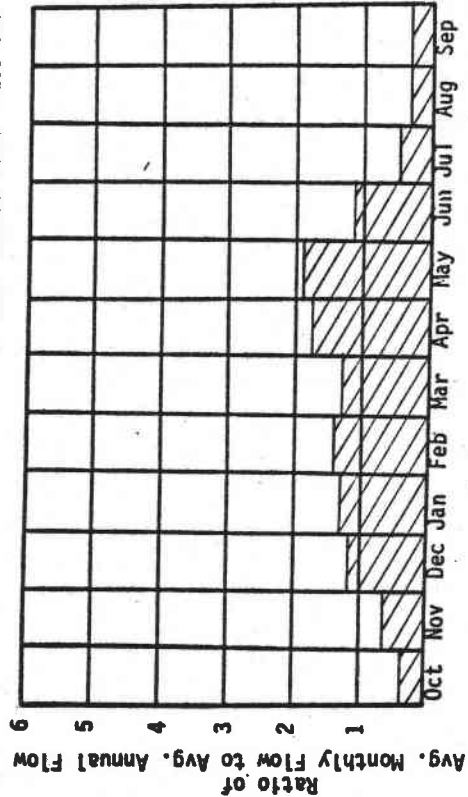
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	1300	Ft. MSL
B. Downstream Elevation of Reach	1060	Ft. MSL
C. Total Available Head in Reach	240	Ft.
D. Average Slope in Reach	53.3	Ft./Mi.
E. Drainage Area above Reach Mouth	109.0	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I	I	I	I	I	I	I	I	I	I	I	I
PERCENTAGE	DISCHARGE	THEORETICAL	ANNUAL ENERGY	PLANT	AVAILABLE	ENERGY	PLANT	FACTOR	FACTOR	FACTOR	FACTOR
I	CFS	PLANT SIZE	I	I	I	I	I	I	I	I	I
I	I	MW	I	I	I	GW/H	I	I	I	I	I
95	32.5	.66	5.79	1.000							
80	41.5	.84	7.20	.973							
50	67.0	1.36	10.15	.850							
30	109.6	2.23	13.18	.675							
10	209.6	4.26	16.75	.448							

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-002-R0002

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 1, T4S, R12E
D. Latitude, Longitude	45° 15' N, 121° 15' W
E. Stream Name	Badger Creek
F. Major Basin Name	Deschutes
G. River Mile	0.0 to 6.3

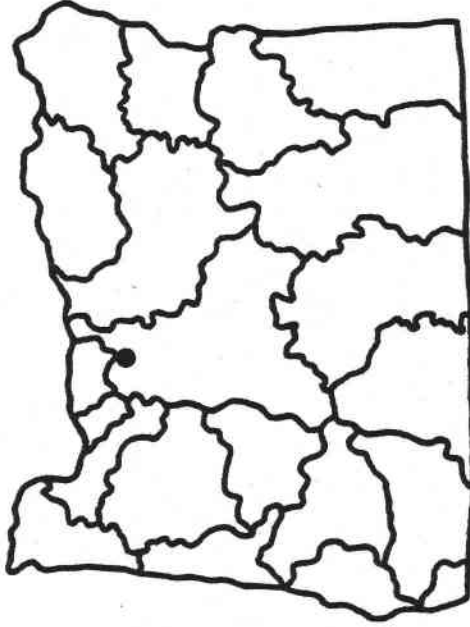
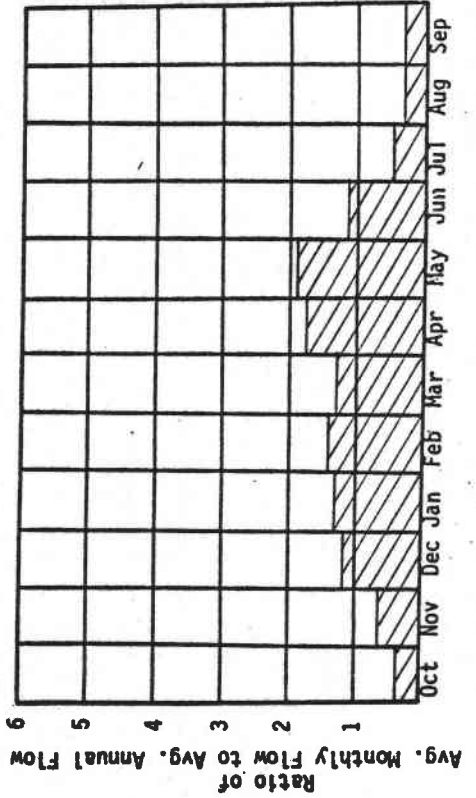
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	1540	Ft. MSL
B. Downstream Elevation of Reach	1300	Ft. MSL
C. Total Available Head in Reach	240	Ft.
D. Average Slope in Reach	38.1	Ft./Mi.
E. Drainage Area above Reach Mouth	50.52	Sq. Mi.
F. Inflow Classification	Natural	

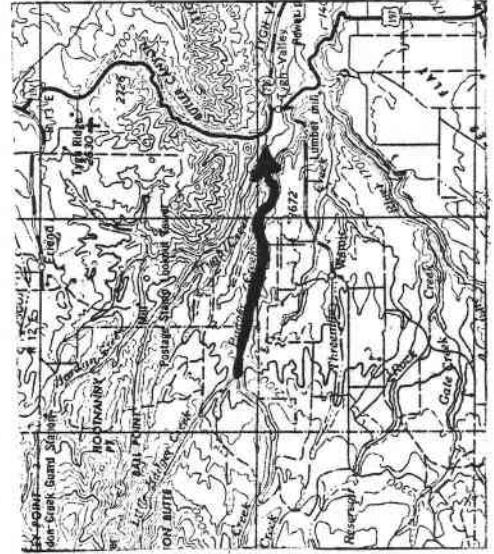
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I	I THEORETICAL I PLANT SIZE I	I ANNUAL ENERGY I AVAILABLE I	I PLANT I FACTOR I
I 95 I	I 20.9 I	I .42 I	I 3.72 I	I 1.000 I
I 80 I	I 26.7 I	I .54 I	I 4.62 I	I .973 I
I 50 I	I 42.9 I	I .87 I	I 6.51 I	I .850 I
I 30 I	I 70.4 I	I 1.43 I	I 8.46 I	I .675 I
I 10 I	I 139.8 I	I 2.84 I	I 10.94 I	I .439 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-002-R0003

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 32, T3S, R12E
D. Latitude, Longitude	45°15'N, 121°20'W
E. Stream Name	Badger Creek
F. Major Basin Name	Deschutes
G. River Mile	6.3 to H.W.

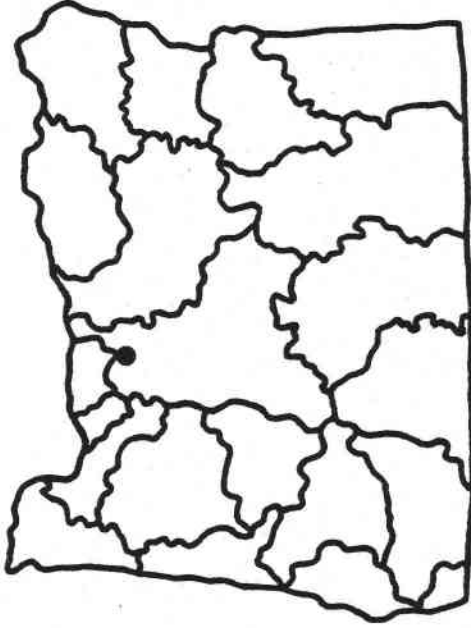
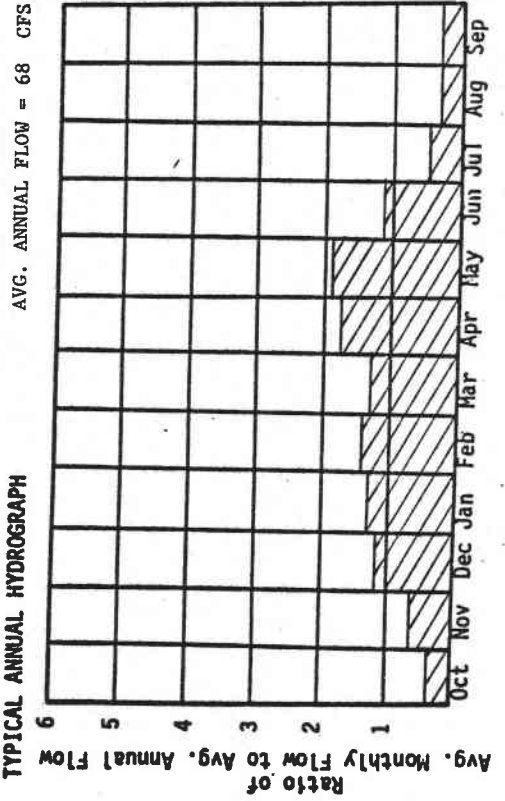
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	---	Ft. MSL
B. Downstream Elevation of Reach	---	Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach	---	Ft./Mi.
E. Drainage Area above Reach Mouth	40.7	Sq. Mi.
F. Inflow Classification	Natural	

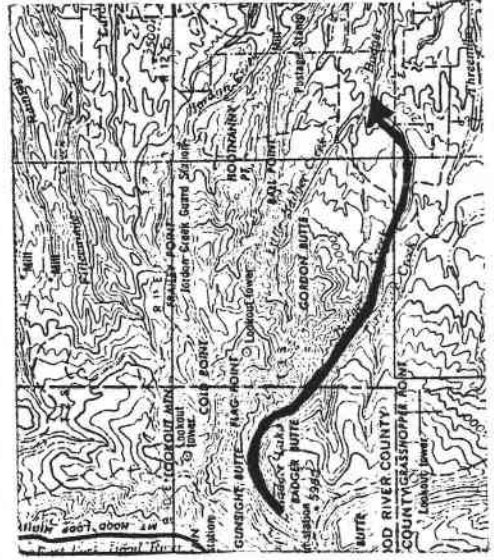
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GMH I	I PLANT I FACTOR I
I 95 I	I 20.1 I	I .11 I	I .99 I	I 1.000 I
I 80 I	I 25.7 I	I .14 I	I 1.22 I	I .973 I
I 50 I	I 41.4 I	I .23 I	I 1.72 I	I .851 I
I 30 I	I 67.8 I	I .38 I	I 2.24 I	I .675 I
I 10 I	I 135.1 I	I .76 I	I 2.90 I	I .438 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES

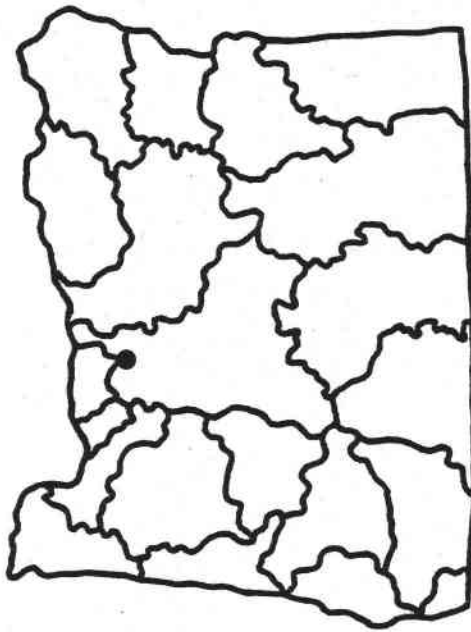


REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-002-R0004

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 16, T3S, R12E
D. Latitude, Longitude	45°18'N, 121°20'W
E. Stream Name	Tygh Creek
F. Major Basin Name	Deschutes
G. River Mile	4.5 To H.W.



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES

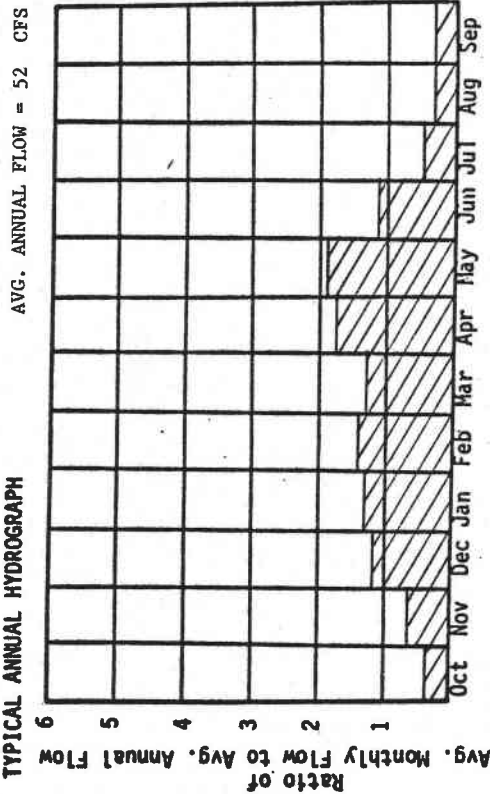
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	--	Ft. MSL
B. Downstream Elevation of Reach	--	Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach	--	Ft./Mi.
E. Drainage Area above Reach Mouth	56.1	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I PERCENTAGE	I	I DISCHARGE	I THEORETICAL	I ANNUAL ENERGY	I PLANT
I	I	I CFS	I MW	I AVAILABLE	I FACTOR
I	I	I	I	I GWH	I
I 95	I	I 14.9	I .08	I .73	I 1.000
I 80	I	I 19.0	I .11	I .91	I .973
I 50	I	I 30.6	I .17	I 1.28	I .851
I 30	I	I 50.3	I .28	I 1.66	I .674
I 10	I	I 102.7	I .57	I 2.17	I .432

IV. TYPICAL ANNUAL HYDROGRAPH



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-000-R0002

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 11, T4S, R13E
D. Latitude, Longitude	45° 14' N, 121° 21' W
E. Stream Name	White River
F. Major Basin Name	Deschutes
G. River Mile	4.9 to 7.7

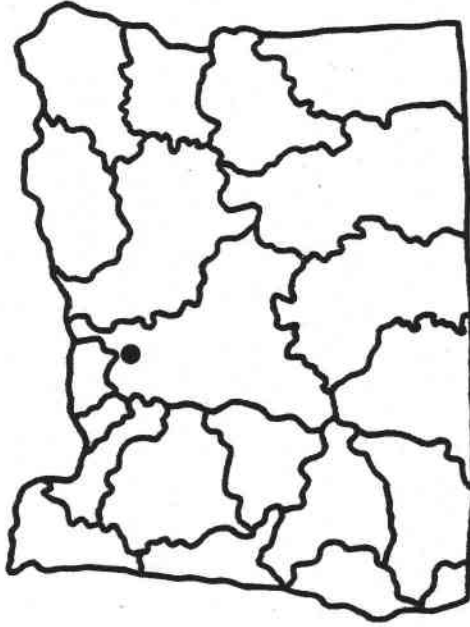
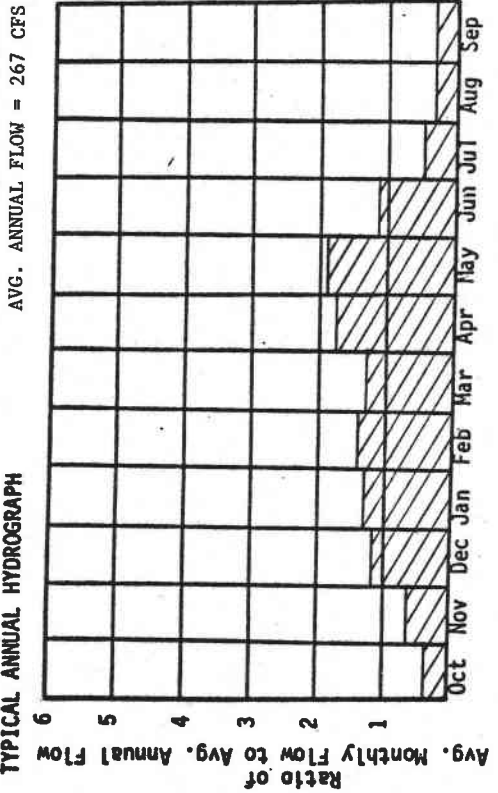
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	1120	Ft. MSL
B. Downstream Elevation of Reach	1060	Ft. MSL
C. Total Available Head in Reach	60	Ft.
D. Average Slope in Reach	21.4	Ft./Mi.
E. Drainage Area above Reach Mouth	262.9	Sq. Mi.
F. Inflow Classification	Natural	

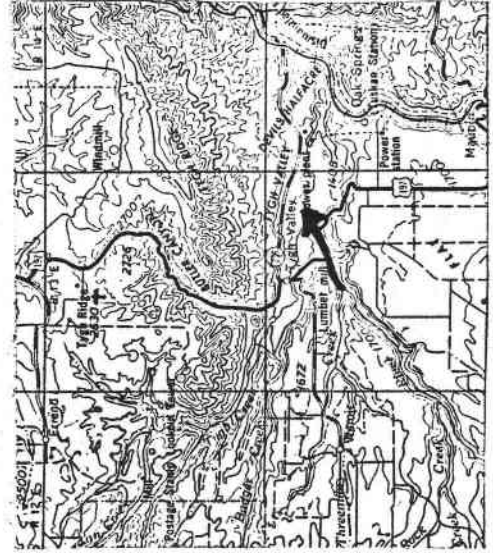
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I I
I 95 I	I 89.3 I	I .45 I	I 3.98 I	I 1.000 I
I 80 I	I 114.3 I	I .58 I	I 4.95 I	I .973 I
I 50 I	I 185.3 I	I .94 I	I 7.01 I	I .849 I
I 30 I	I 301.0 I	I 1.53 I	I 9.07 I	I .676 I
I 10 I	I 528.8 I	I 2.69 I	I 11.10 I	I .471 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-000-R0003

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 20, T4S, R13E
D. Latitude, Longitude	45°13'N, 121°18'W
E. Stream Name	White River
F. Major Basin Name	Deschutes
G. River Mile	7.7 to 12.1

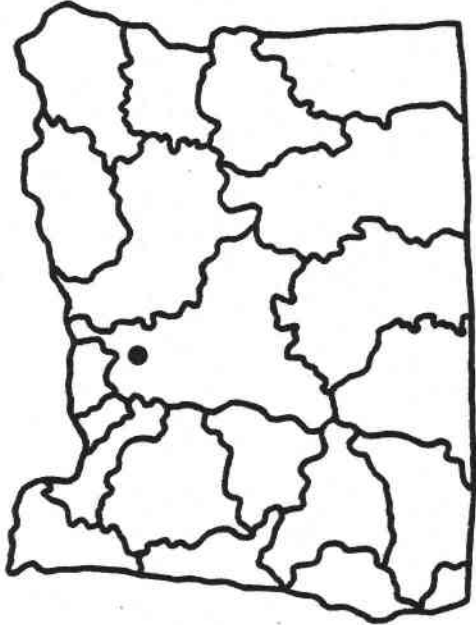
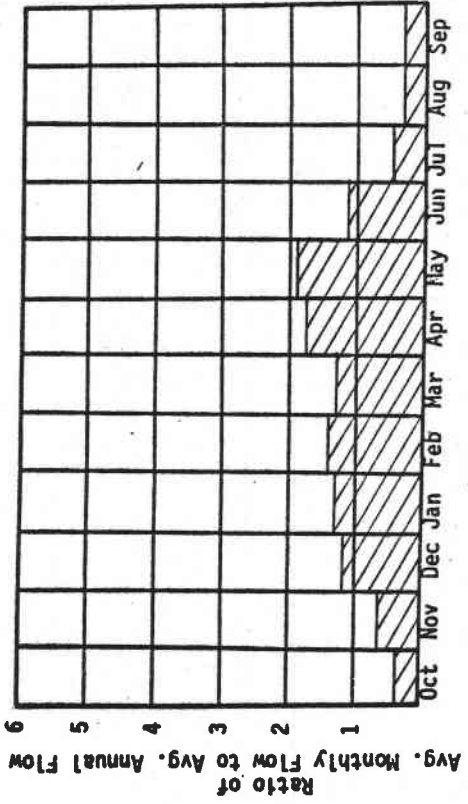
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	1290	Ft. MSL
B. Downstream Elevation of Reach	1120	Ft. MSL
C. Total Available Head in Reach	170	Ft.
D. Average Slope in Reach	38.6	Ft./Mi.
E. Drainage Area above Reach Mouth	212.7	Sq. Mi.
F. Inflow Classification	Natural	

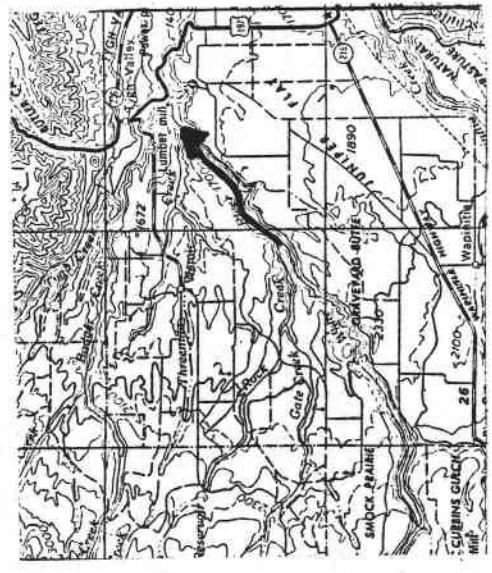
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS	I THEORETICAL I PLANT SIZE I MW	I ANNUAL ENERGY I AVAILABLE I GMWH	I PLANT I FACTOR I
I 95 I	I 83.3 I	I 1.20 I	I 10.51 I	I 1.000 I
I 80 I	I 106.5 I	I 1.53 I	I 13.08 I	I .973 I
I 50 I	I 172.7 I	I 2.49 I	I 18.51 I	I .849 I
I 30 I	I 280.7 I	I 4.04 I	I 23.96 I	I .676 I
I 10 I	I 496.0 I	I 7.15 I	I 29.39 I	I .470 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-004-R0001

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 24, T4S, R1E
D. Latitude, Longitude	45° 12' N, 121° 22' W
E. Stream Name	Rock Creek
F. Major Basin Name	Deschutes
G. River Mile	0.0 to H.W.

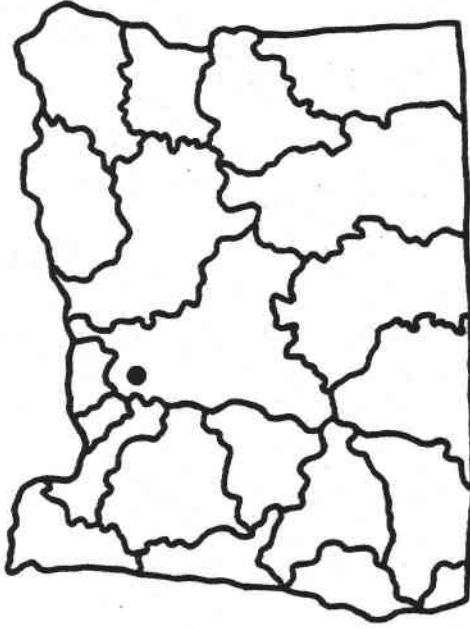
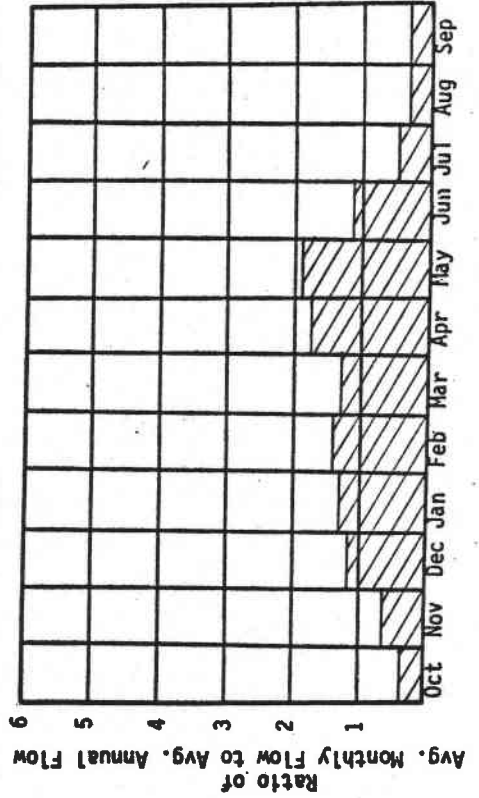
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	---	Ft. MSL
B. Downstream Elevation of Reach	---	Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach	---	Ft./Mi.
E. Drainage Area above Reach Mouth	58.5	Sq. Mi.
F. Inflow Classification	Natural	

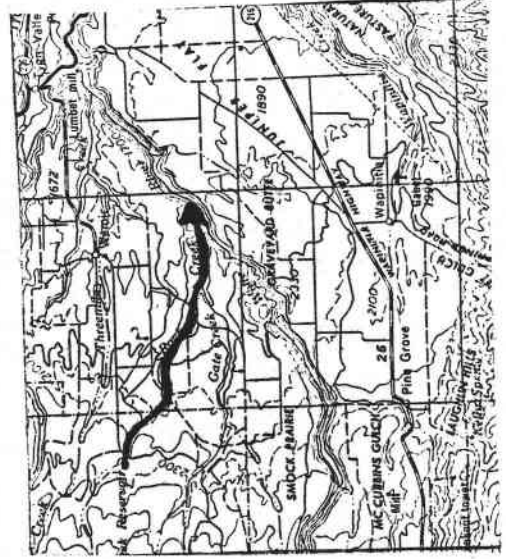
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE	I DISCHARGE I CFS	I THEORETICAL I PLANT SIZE I MW	I ANNUAL ENERGY I AVAILABLE I GWH	I PLANT I FACTOR
I 95	I 24.6	I .14	I 1.20	I 1.000
I 80	I 31.4	I .18	I 1.50	I .973
I 50	I 50.6	I .28	I 2.11	I .850
I 30	I 82.9	I .46	I 2.74	I .675
I 10	I 162.3	I .91	I 3.52	I .442

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-000-R0004

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 18, T5S, R12E
D. Latitude, Longitude	45° 08' N, 121° 22' W
E. Stream Name	White River
F. Major Basin Name	Deschutes
G. River Mile	12.1 to 28.7

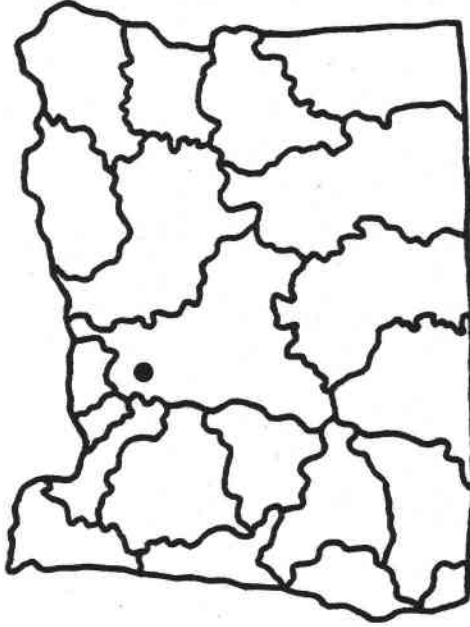
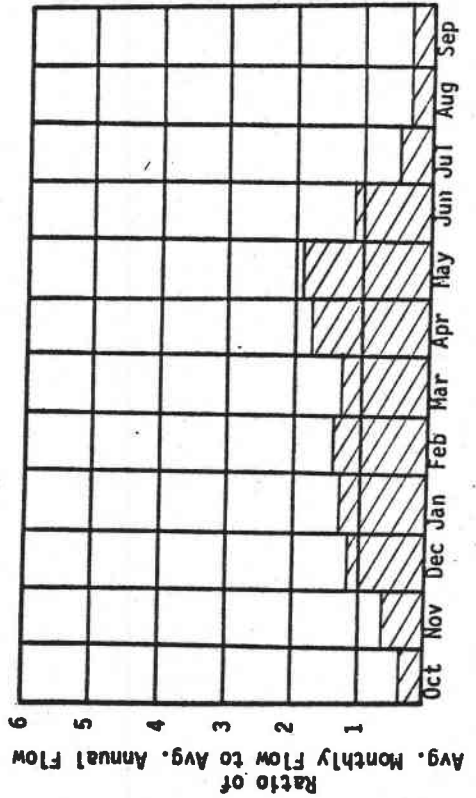
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2370	Ft. MSL
B. Downstream Elevation of Reach	1290	Ft. MSL
C. Total Available Head in Reach	1080	Ft.
D. Average Slope in Reach	65.1	Ft./Mi.
E. Drainage Area above Reach Mouth	138.4	Sq. Mi.
F. Inflow Classification	Natural	

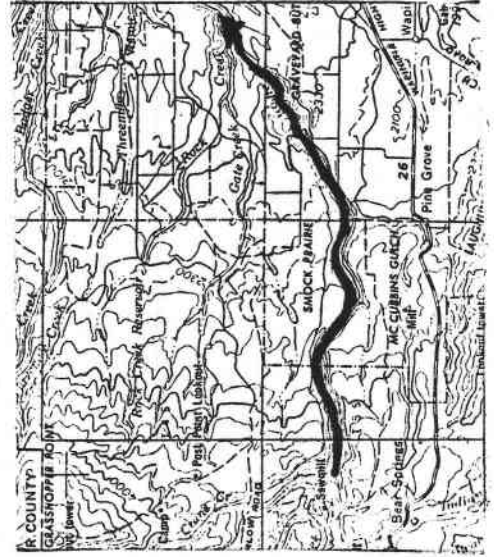
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE	I DISCHARGE I CFS	I THEORETICAL I PLANT SIZE I MW	I ANNUAL ENERGY I AVAILABLE I GWH	I PLANT I FACTOR I
I 95	I 64.2	I 5.87	I 51.45	I 1.000
I 80	I 82.0	I 7.51	I 63.99	I .973
I 50	I 132.9	I 12.16	I 90.47	I .849
I 30	I 216.3	I 19.79	I 117.22	I .676
I 10	I 390.7	I 35.76	I 145.19	I .463

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-000-R0005

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 11, T5S, R10E
D. Latitude, Longitude	45°09'N, 121°30'W
E. Stream Name	White River
F. Major Basin Name	Deschutes
G. River Mile	28.7 to 29.5

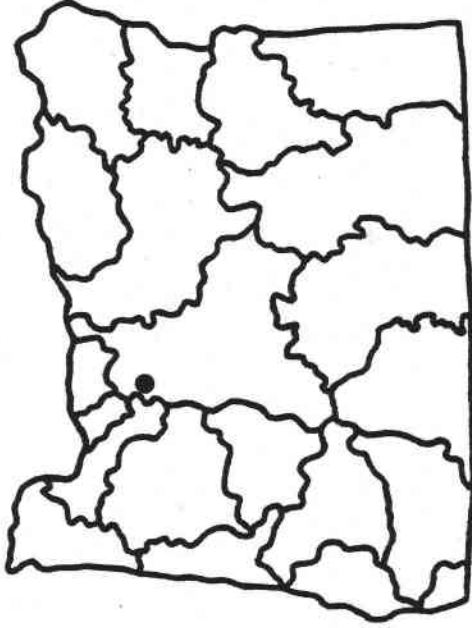
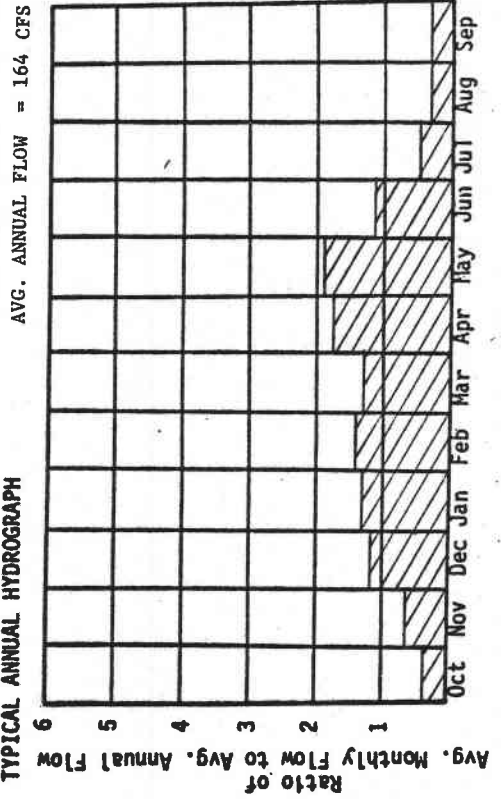
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2450	Ft. MSL
B. Downstream Elevation of Reach	2370	Ft. MSL
C. Total Available Head in Reach	80	Ft.
D. Average Slope in Reach	100	Ft./Mi.
E. Drainage Area above Reach Mouth	92.0	Sq. Mi.
F. Inflow Classification	Natural	

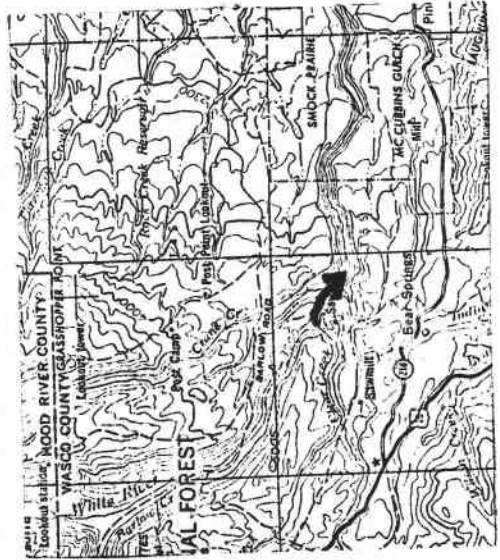
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 52.2 I	I .35 I	I 3.10 I	I 1.000 I
I 80 I	I 66.7 I	I .45 I	I 3.85 I	I .973 I
I 50 I	I 107.9 I	I .73 I	I 5.44 I	I .850 I
I 30 I	I 175.9 I	I 1.19 I	I 7.06 I	I .676 I
I 10 I	I 323.3 I	I 2.19 I	I 8.81 I	I .459 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-006-R0001

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 13, T5S, R9E
D. Latitude, Longitude	45°08'N, 121°37'W
E. Stream Name	Clear Creek
F. Major Basin Name	Deschutes
G. River Mile	0.0 to H.W.

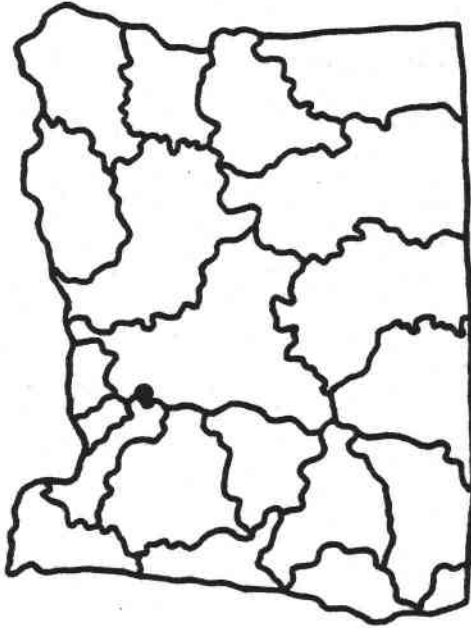
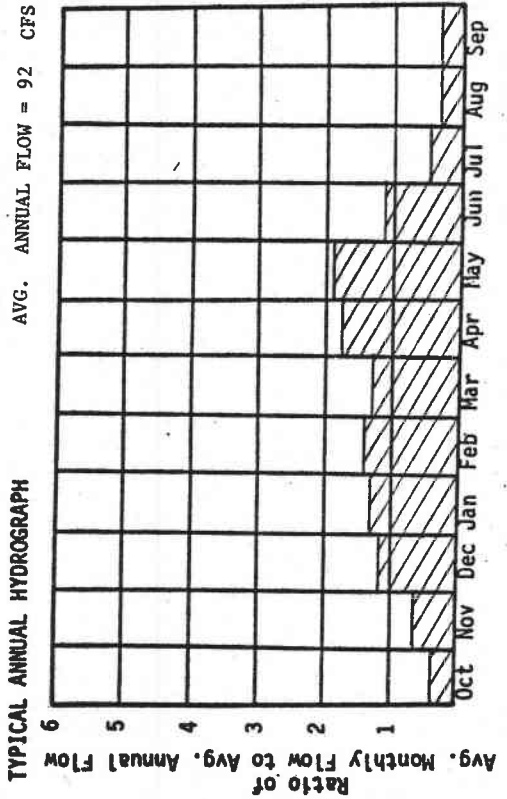
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	---	Ft. MSL
B. Downstream Elevation of Reach	---	Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach	---	Ft./Mi.
E. Drainage Area above Reach Mouth	44.9	Sq. Mi.
F. Inflow Classification	Regulated	

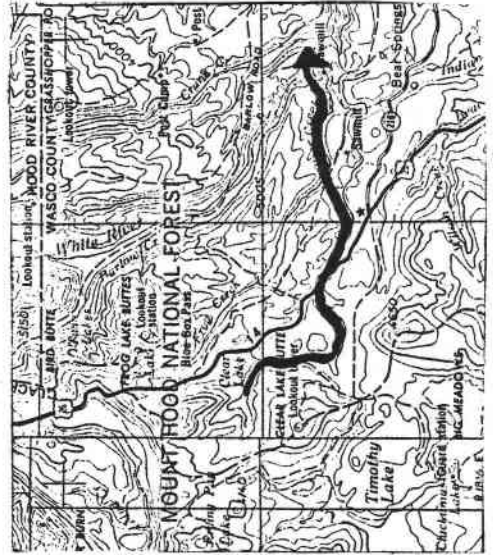
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I	PERCENTAGE I	DISCHARGE I	THEORETICAL I	ANNUAL ENERGY I	PLANT I					
I	I	CFS	PLANT SIZE I	AVAILABLE I	FACTOR I					
I	I	I	MW	GWH	I					
I	95	I	28.0	I	.16	I	1.37	I	1.000	I
I	80	I	35.8	I	.20	I	1.71	I	.973	I
I	50	I	57.7	I	.32	I	2.40	I	.850	I
I	30	I	94.5	I	.53	I	3.12	I	.675	I
I	10	I	183.0	I	1.02	I	3.99	I	.445	I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-000-R0006

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 32, T4S, R10E
D. Latitude, Longitude	45°11'N, 121°34'W
E. Stream Name	White River
F. Major Basin Name	Deschutes
G. River Mile	29.5 to 36.0

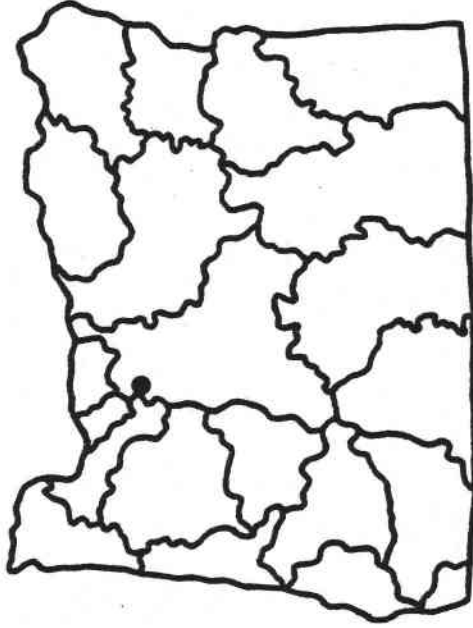
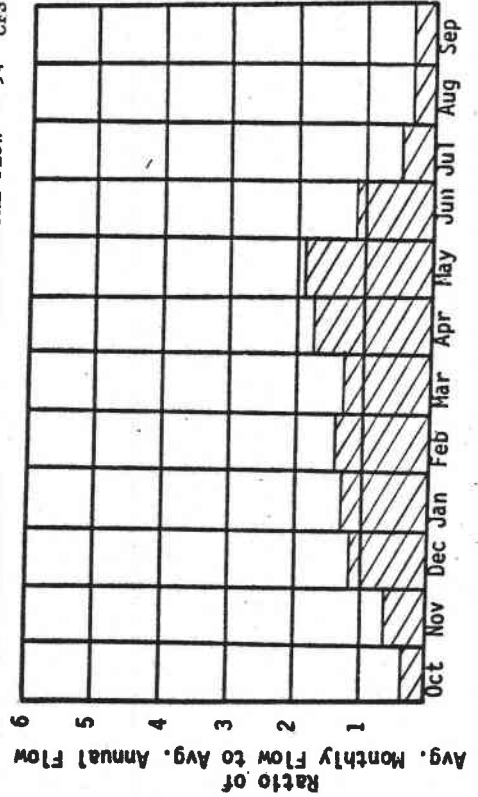
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2870	Ft. MSL
B. Downstream Elevation of Reach	2450	Ft. MSL
C. Total Available Head in Reach	420	Ft.
D. Average Slope in Reach	64.6	Ft./MI.
E. Drainage Area above Reach Mouth	46.4	Sq. MI.
F. Inflow Classification	Natural	

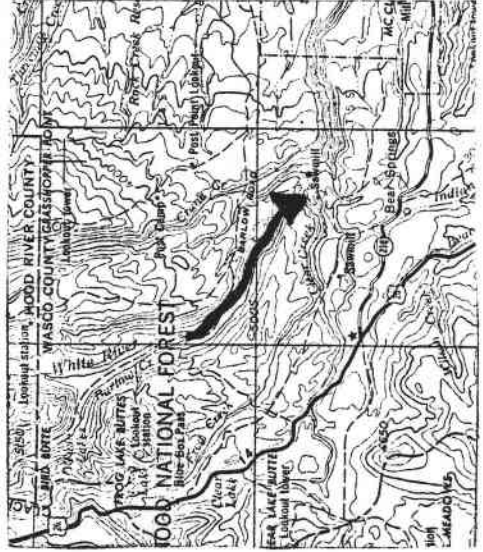
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 28.4 I	I 1.01 I	I 8.87 I	I 1.000 I
I 80 I	I 36.3 I	I 1.29 I	I 11.02 I	I .973 I
I 50 I	I 58.6 I	I 2.09 I	I 15.53 I	I .850 I
I 30 I	I 95.9 I	I 3.41 I	I 20.18 I	I .675 I
I 10 I	I 185.5 I	I 6.60 I	I 25.77 I	I .446 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-013-000-R0007

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 27, T3S, R9E
D. Latitude, Longitude	45°16'N, 121°39'W
E. Stream Name	White River
F. Major Basin Name	Deschutes
G. River Mile	36.0 to H.W.

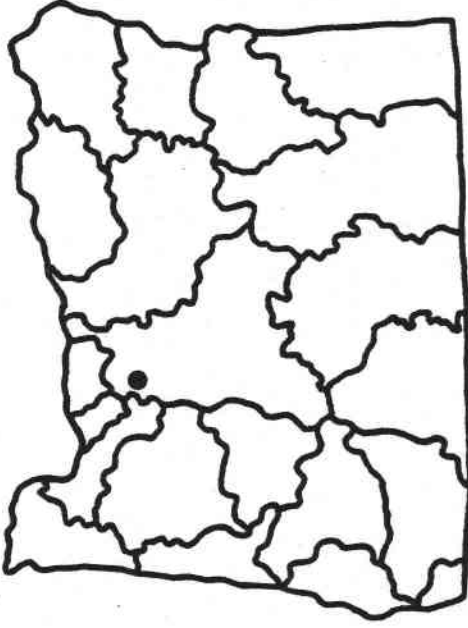
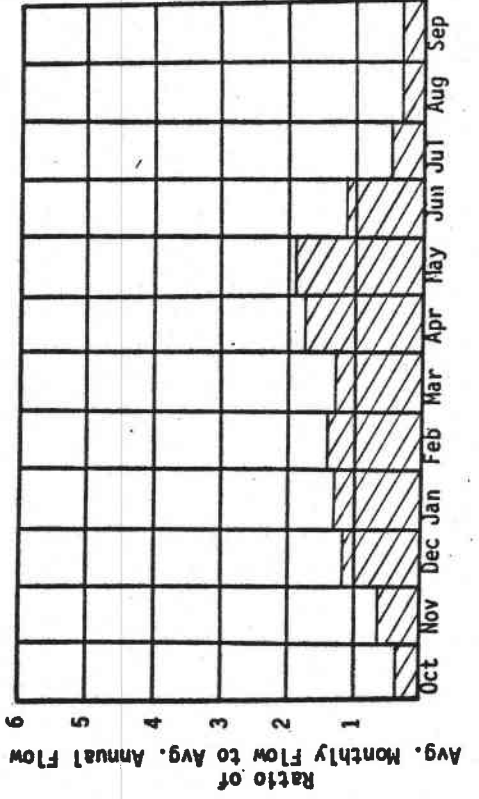
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach		Ft. MSL
B. Downstream Elevation of Reach		Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach		Ft./Mi.
E. Drainage Area above Reach Mouth	36.52	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 26.0 I	I .15 I	I 1.27 I	I 1.000 I
I 80 I	I 33.2 I	I .19 I	I 1.58 I	I .973 I
I 50 I	I 53.5 I	I .30 I	I 2.23 I	I .850 I
I 30 I	I 87.6 I	I .49 I	I 2.90 I	I .675 I
I 10 I	I 170.8 I	I .96 I	I 3.71 I	I .444 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-000-000-R0007

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 29, T4S, R14E
D. Latitude, Longitude	45° 11' N, 121° 05' W
E. Stream Name	Deschutes River
F. Major Basin Name	Deschutes
G. River Mile	46.4 to 54.7

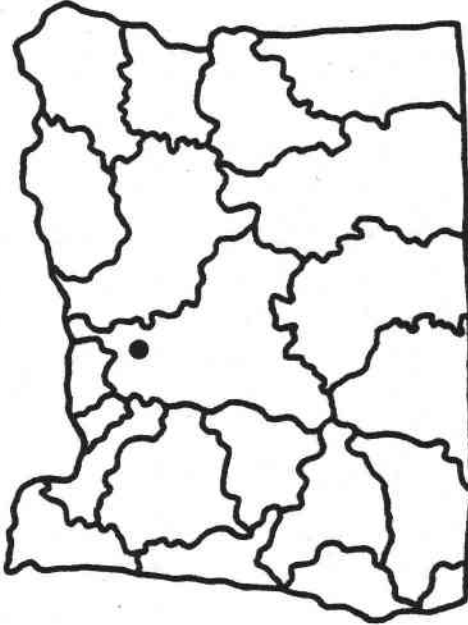
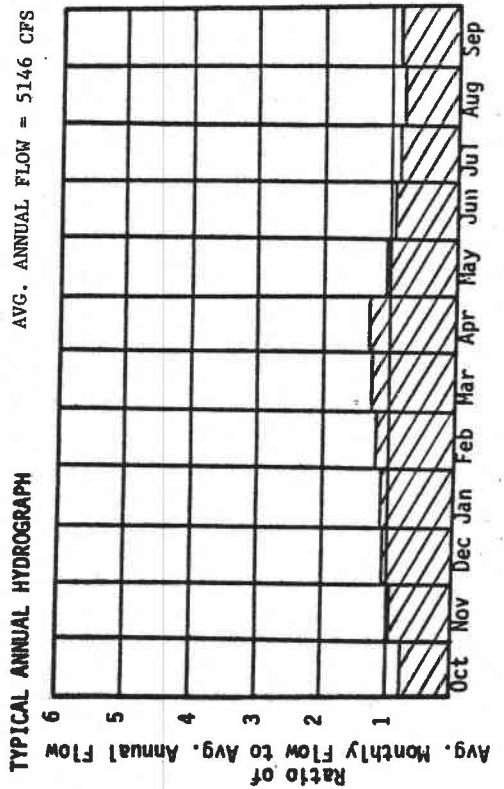
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	885	Ft. MSL
B. Downstream Elevation of Reach	747	Ft. MSL
C. Total Available Head in Reach	138	Ft.
D. Average Slope in Reach	16.6	Ft./Mi.
E. Drainage Area above Reach Mouth	7618.7	Sq. Mi.
F. Inflow Classification	Regulated	

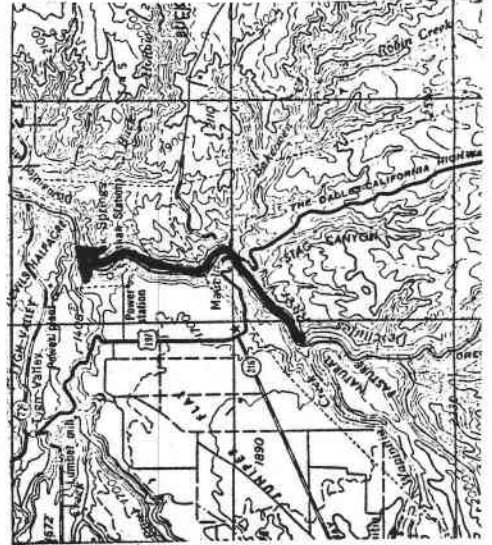
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 3620.1 I	I 42.34 I	I 370.87 I	I 1.000 I
I 80 I	I 4176.1 I	I 48.84 I	I 420.71 I	I .983 I
I 50 I	I 4823.6 I	I 56.41 I	I 463.83 I	I .939 I
I 30 I	I 5509.6 I	I 64.43 I	I 491.94 I	I .872 I
I 10 I	I 7152.8 I	I 83.65 I	I 525.61 I	I .717 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-017-000-R0001

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 15, T4S, R13E
D. Latitude, Longitude	45°08'N, 121°09'W
E. Stream Name	Mapinita Creek
F. Major Basin Name	Deschutes
G. River Mile	0.0 to 3.0

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

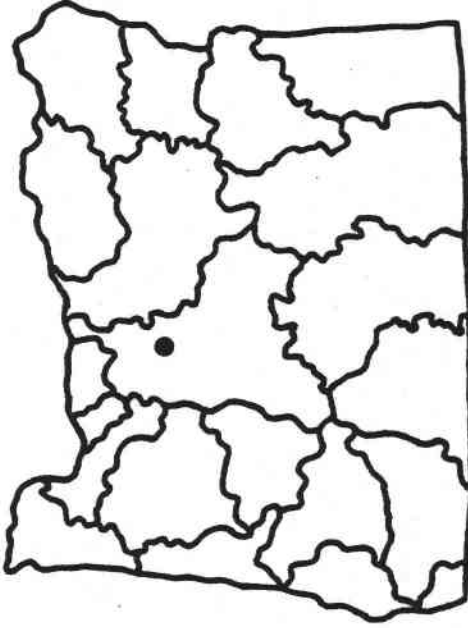
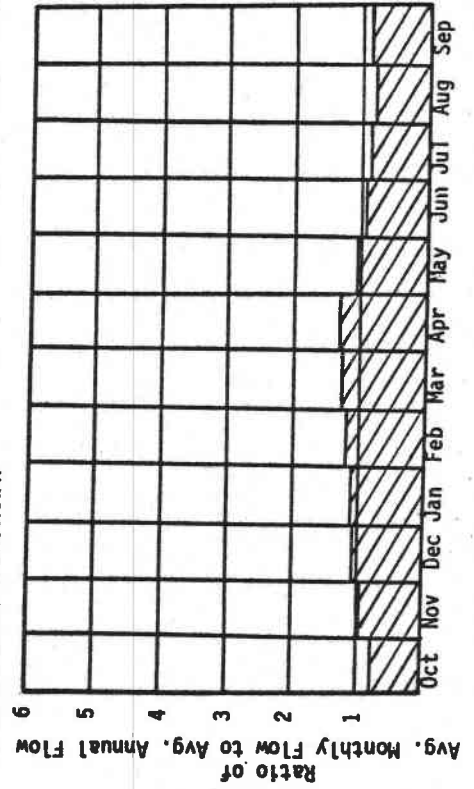
A. Upstream Elevation of Reach	1500	Ft. MSL
B. Downstream Elevation of Reach	885	Ft. MSL
C. Total Available Head in Reach	615	Ft.
D. Average Slope in Reach	205	Ft./Mi.
E. Drainage Area above Reach Mouth	78.46	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

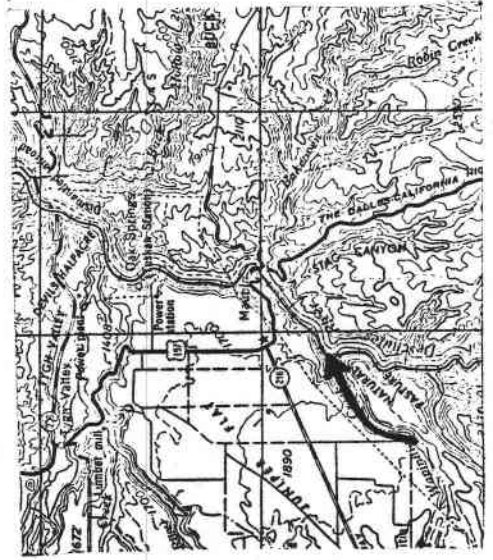
I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I I
I 95 I	I 20.2 I	I 1.05 I	I 9.22 I	I 1.000 I
I 80 I	I 25.8 I	I 1.34 I	I 11.45 I	I .973 I
I 50 I	I 41.5 I	I 2.16 I	I 16.12 I	I .851 I
I 30 I	I 68.1 I	I 3.55 I	I 20.97 I	I .675 I
I 10 I	I 135.6 I	I 7.06 I	I 27.13 I	I .438 I

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 68 CFS



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-017-000-R0002

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 25, T5S, R12E
D. Latitude, Longitude	45°07'N, 121°15'W
E. Stream Name	Maninifa Creek
F. Major Basin Name	Deschutes
G. River Mile	3.0 to H.W.

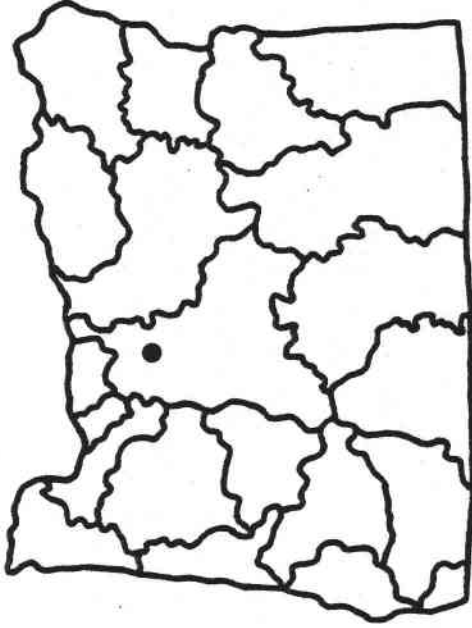
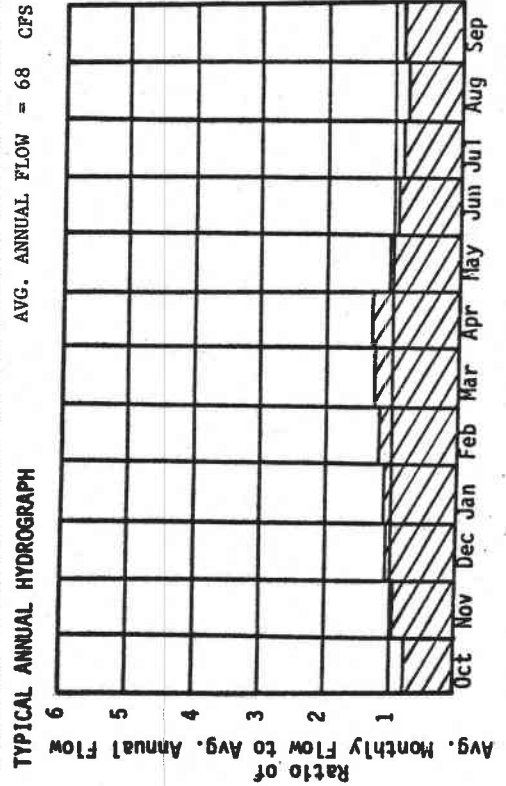
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach		Ft. MSL
B. Downstream Elevation of Reach		Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach		Ft./Mi.
E. Drainage Area above Reach Mouth	7342.6	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 19.9 I	I .11 I	I .98 I	I 1.000 I
I 80 I	I 25.4 I	I .14 I	I 1.21 I	I .973 I
I 50 I	I 40.9 I	I .23 I	I 1.71 I	I .851 I
I 30 I	I 67.1 I	I .38 I	I 2.22 I	I .675 I
I 10 I	I 133.9 I	I .75 I	I 2.87 I	I .438 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-000-000-R0009

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 13, T6S, R13E
D. Latitude, Longitude	45°03'N, 121°07'W
E. Stream Name	Deschutes River
F. Major Basin Name	Deschutes
G. River Mile	54.7 to 72.6

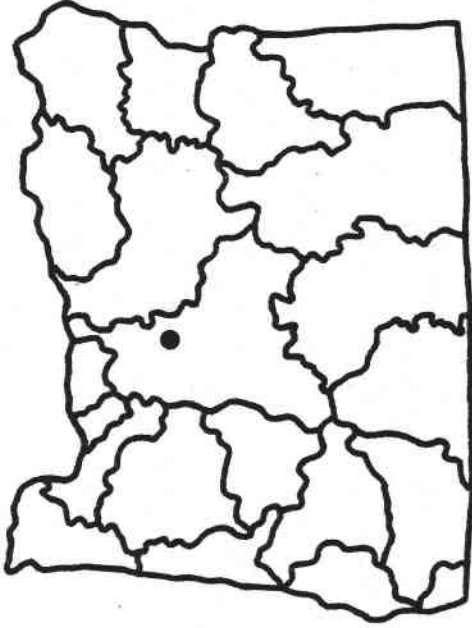
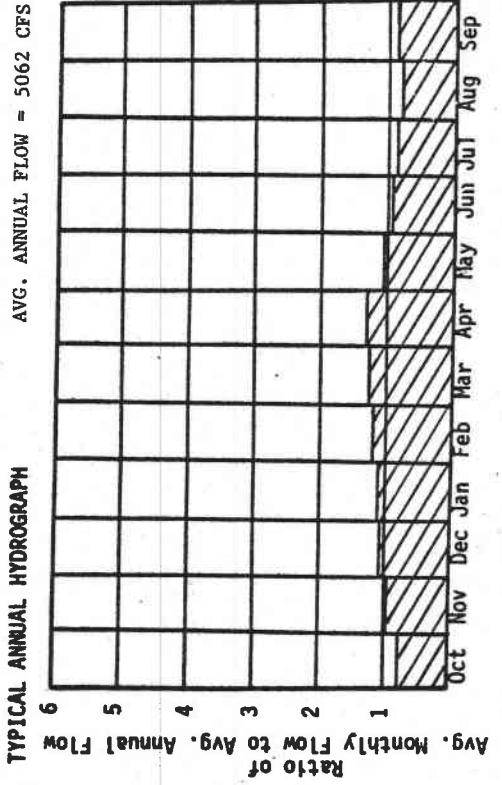
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	1085	Ft. MSL
B. Downstream Elevation of Reach	885	Ft. MSL
C. Total Available Head in Reach	200	Ft.
D. Average Slope in Reach	11.2	Ft./Mi.
E. Drainage Area above Reach Mouth	72.4	Sq. Mi.
F. Inflow Classification	Regulated	

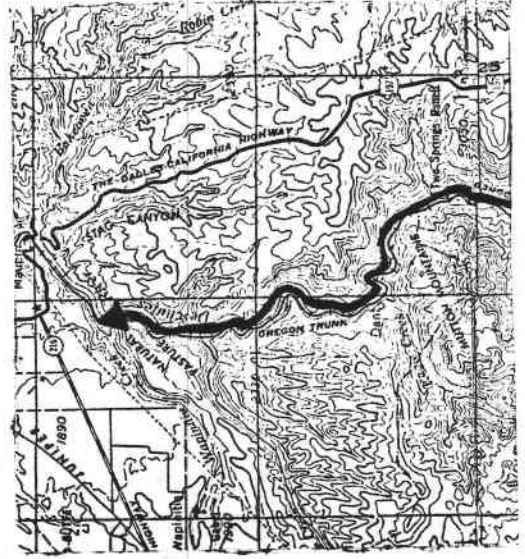
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I I
I 95 I	I 3591.6 I	I 60.87 I	I 533.26 I	I 1.000 I
I 80 I	I 4143.6 I	I 70.23 I	I 604.97 I	I .983 I
I 50 I	I 4762.7 I	I 80.72 I	I 664.72 I	I .940 I
I 30 I	I 5421.1 I	I 91.88 I	I 703.83 I	I .874 I
I 10 I	I 7010.8 I	I 118.83 I	I 751.03 I	I .722 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-000-000-R0011

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 32, T7S, R14E
D. Latitude, Longitude	44° 55' N, 121° 05' W
E. Stream Name	Deschutes River
F. Major Basin Name	Deschutes
G. River Mile	72.6 to 83.8

II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

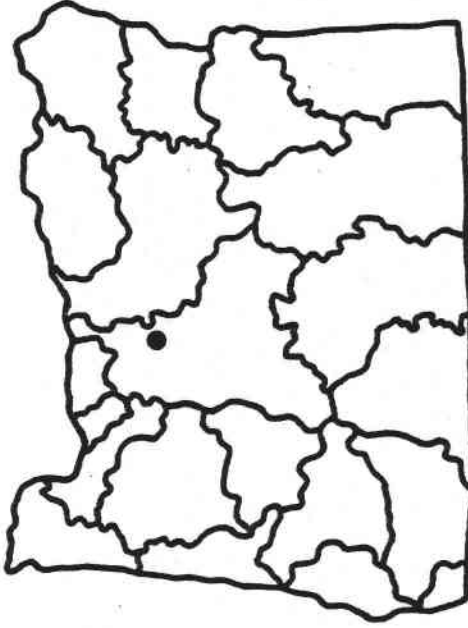
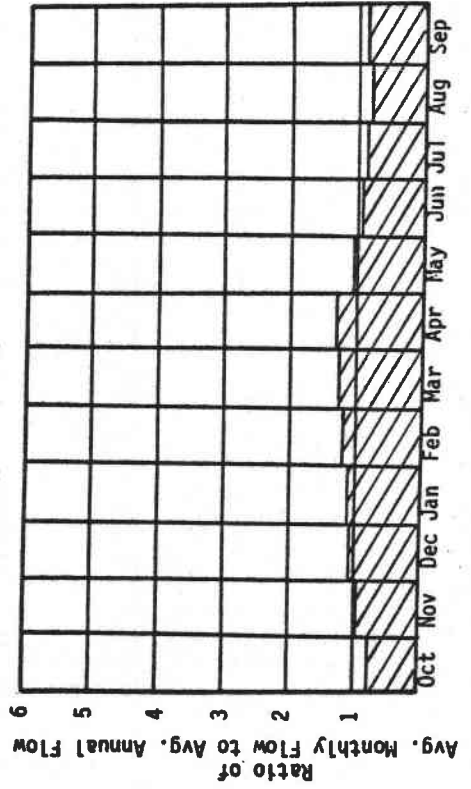
A. Upstream Elevation of Reach	1232	Ft. MSL
B. Downstream Elevation of Reach	1085	Ft. MSL
C. Total Available Head in Reach	147	Ft.
D. Average Slope in Reach	13.1	Ft./Mi.
E. Drainage Area above Reach Mouth	7222.2	Sq. Mi.
F. Inflow Classification	Regulated	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

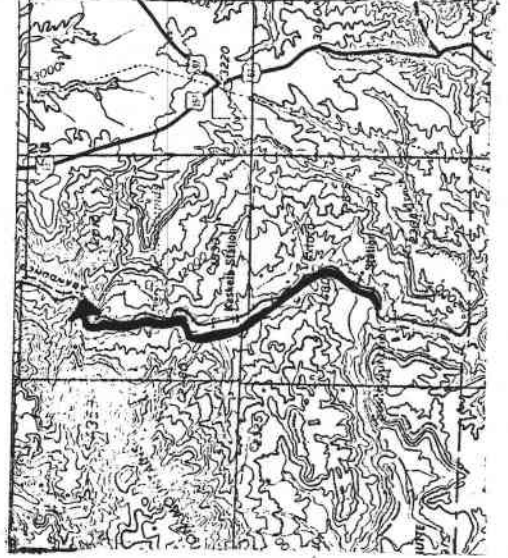
I	PERCENTAGE	I	DISCHARGE	I	THEORETICAL	I	ANNUAL ENERGY	I	PLANT
I	I	I	CFS	I	PLANT SIZE	I	AVAILABLE	I	FACTOR
I	I	I	I	I	MW	I	GWH	I	I
I	95	I	3591.6	I	44.74	I	391.94	I	1.000
I	80	I	4143.6	I	51.62	I	444.66	I	.983
I	50	I	4762.7	I	59.33	I	488.57	I	.940
I	30	I	5421.1	I	67.53	I	517.31	I	.874
I	10	I	7010.8	I	87.34	I	552.01	I	.722

IV. TYPICAL ANNUAL HYDROGRAPH

AVG. ANNUAL FLOW = 5062 CFS



U. S. G. S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: THE DALLES-BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-000-R0001

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 24, T8S, R13E
D. Latitude, Longitude	44° 52' N, 121° 08' W
E. Stream Name	Warm Springs River
F. Major Basin Name	Deschutes
G. River Mile	0.0 to 8.4

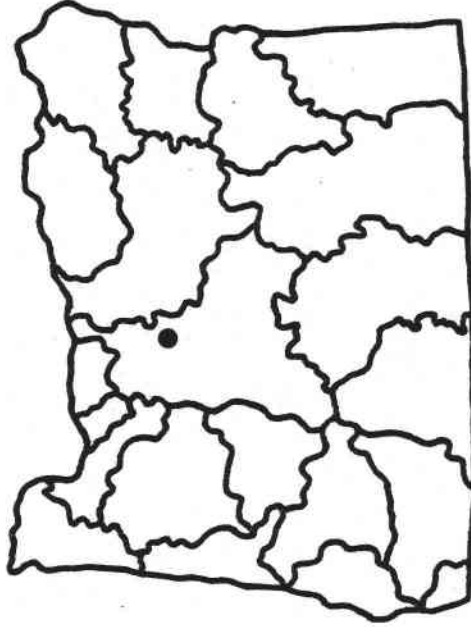
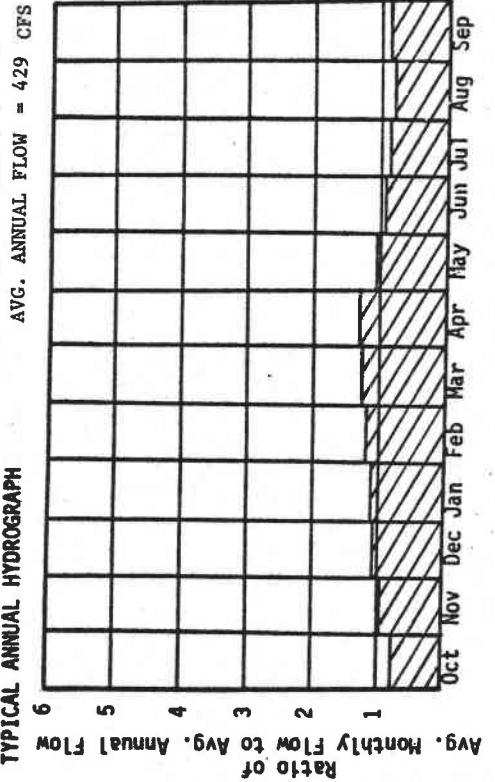
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	1534	Ft. MSL
B. Downstream Elevation of Reach	1232	Ft. MSL
C. Total Available Head in Reach	302	Ft.
D. Average Slope in Reach	35.9	Ft./MI.
E. Drainage Area above Reach Mouth	543.6	Sq. MI.
F. Inflow Classification	Natural	

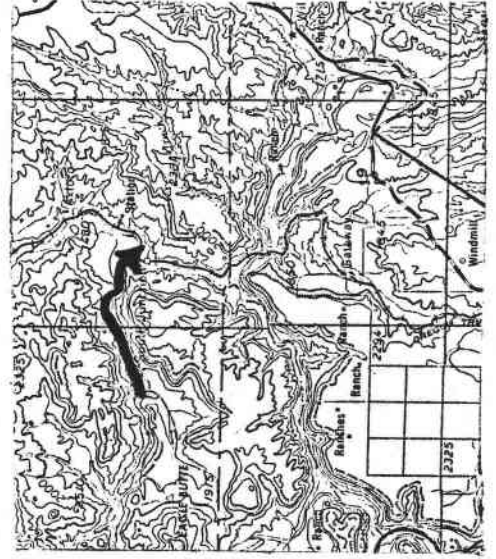
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 149.9 I	I 3.84 I	I 33.60 I	I 1.000 I
I 80 I	I 191.9 I	I 4.91 I	I 41.84 I	I .973 I
I 50 I	I 311.9 I	I 7.98 I	I 59.34 I	I .848 I
I 30 I	I 505.0 I	I 12.93 I	I 76.65 I	I .677 I
I 10 I	I 849.4 I	I 21.74 I	I 92.10 I	I .484 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-000-R0002

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 34, T8S, R12E
D. Latitude, Longitude	44° 50' N, 121° 16' W
E. Stream Name	Warm Springs River
F. Major Basin Name	Deschutes
G. River Mile	8.4 to 19.1

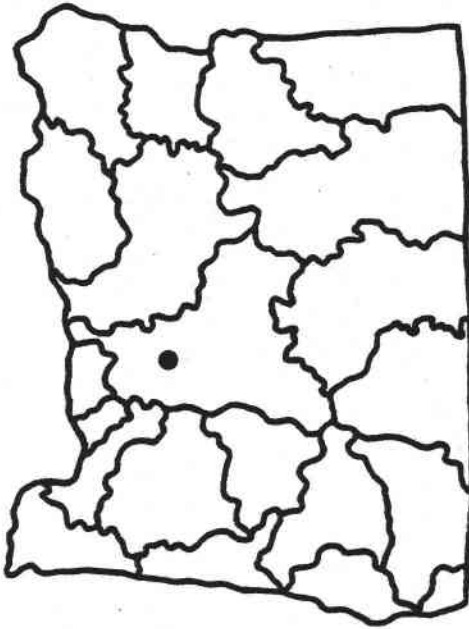
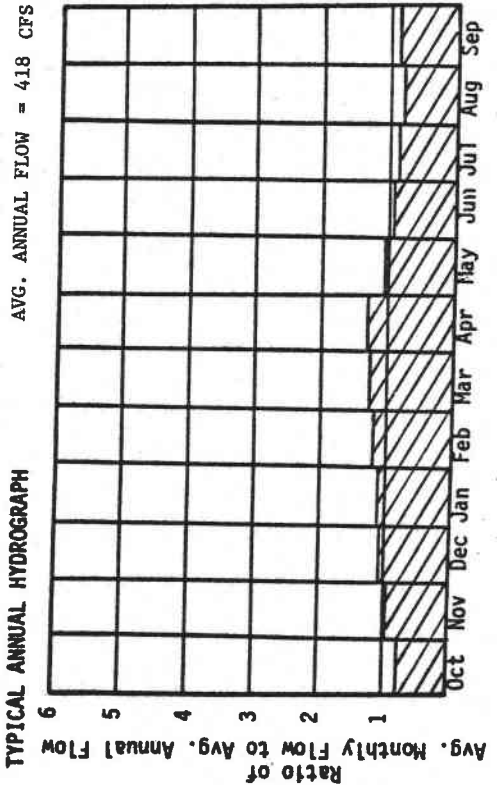
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	1884	Ft. MSL
B. Downstream Elevation of Reach	1534	Ft. MSL
C. Total Available Head in Reach	350	Ft.
D. Average Slope in Reach	32.7	Ft./Mi.
E. Drainage Area above Reach Mouth	514.4	Sq. Mi.
F. Inflow Classification	Natural	

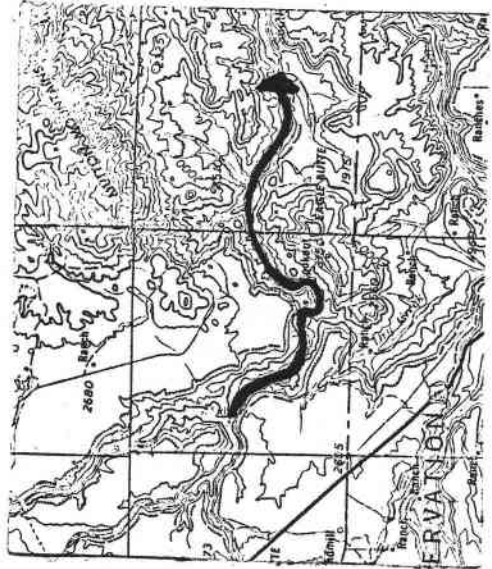
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS	I THEORETICAL I PLANT SIZE I MW	I ANNUAL ENERGY I AVAILABLE I CWH	I PLANT I FACTOR I
I 95	I 146.0	I 4.33	I 37.93	I 1.000
I 80	I 186.9	I 5.54	I 47.23	I .973
I 50	I 303.8	I 9.01	I 66.97	I .848
I 30	I 491.9	I 14.59	I 86.53	I .677
I 10	I 829.2	I 24.60	I 104.05	I .483

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-006-R0001

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 31, T7S, R12E
D. Latitude, Longitude	44° 55' N, 121° 22' W
E. Stream Name	Beaver Creek
F. Major Basin Name	Deschutes
G. River Mile	0.0 to 9.0

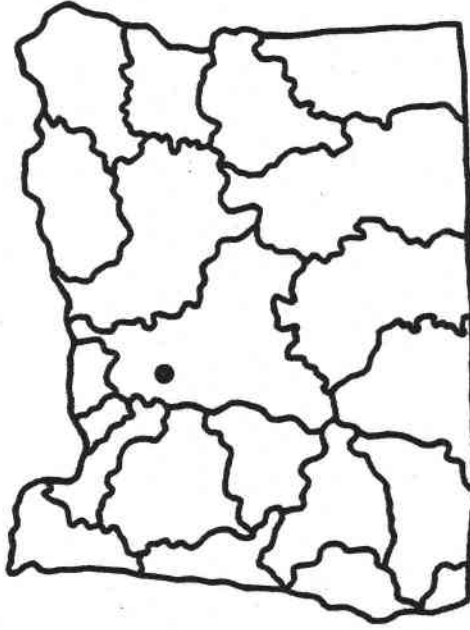
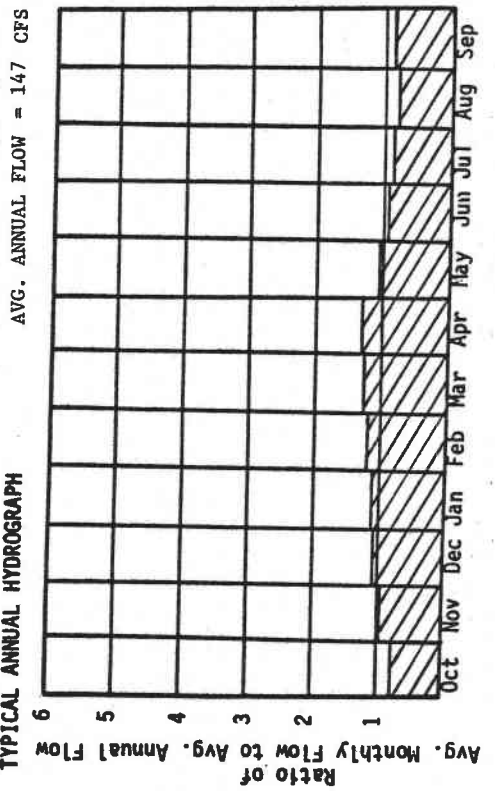
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2300	Ft. MSL
B. Downstream Elevation of Reach	1870	Ft. MSL
C. Total Available Head in Reach	430	Ft.
D. Average Slope in Reach	47.8	Ft./Mi.
E. Drainage Area above Reach Mouth	169.6	Sq. Mi.
F. Inflow Classification	Natural	

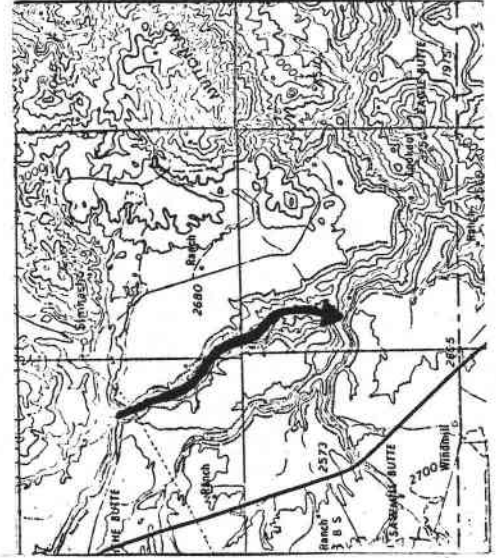
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 46.5 I	I 1.69 I	I 14.84 I	I 1.000 I
I 80 I	I 59.4 I	I 2.16 I	I 18.45 I	I .973 I
I 50 I	I 96.0 I	I 3.50 I	I 26.05 I	I .850 I
I 30 I	I 156.7 I	I 5.71 I	I 33.79 I	I .676 I
I 10 I	I 290.8 I	I 10.60 I	I 42.36 I	I .456 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-006-R0002

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 5, T7S, R11E
D. Latitude, Longitude	44° 59' N, 121° 27' W
E. Stream Name	Beaver Creek
F. Major Basin Name	Deschutes
G. River Mile	9.0 to 15.0

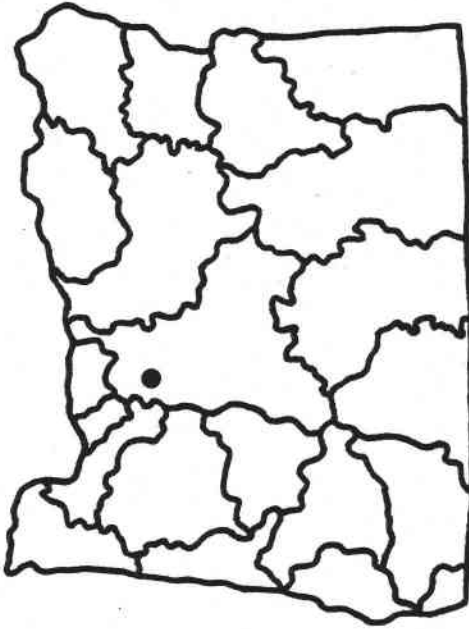
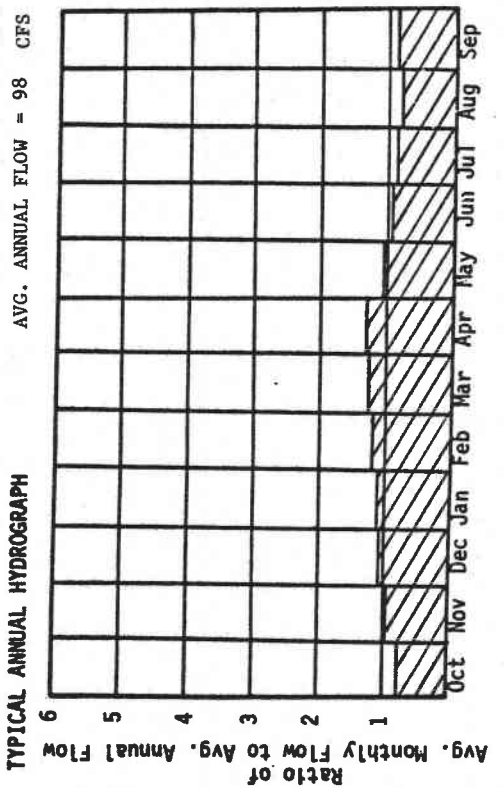
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2505	Ft. MSL
B. Downstream Elevation of Reach	2300	Ft. MSL
C. Total Available Head in Reach	205	Ft.
D. Average Slope in Reach	34.2	Ft./Mi.
E. Drainage Area above Reach Mouth	72.1	Sq. Mi.
F. Inflow Classification	Natural	

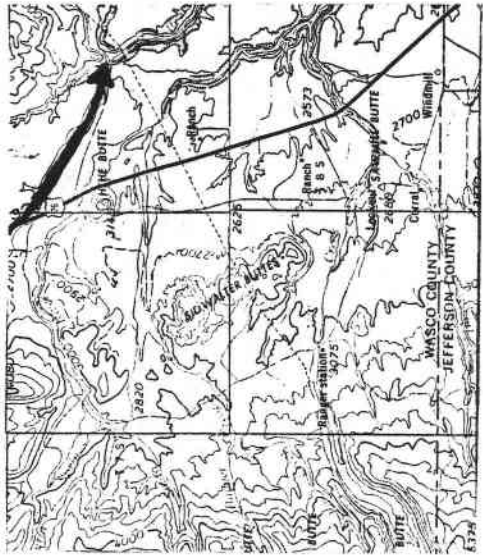
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 29.7 I	I .52 I	I 4.52 I	I 1.000 I
I 80 I	I 37.9 I	I .66 I	I 5.61 I	I .973 I
I 50 I	I 61.1 I	I 1.06 I	I 7.91 I	I .850 I
I 30 I	I 100.0 I	I 1.74 I	I 10.27 I	I .675 I
I 10 I	I 192.8 I	I 3.35 I	I 13.10 I	I .446 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-006-R0003

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 33, T5S, R10E
D. Latitude, Longitude	45° 05' N, 121° 33' W
E. Stream Name	Beaver Creek
F. Major Basin Name	Deschutes
G. River Mile	15.0 to H.W.

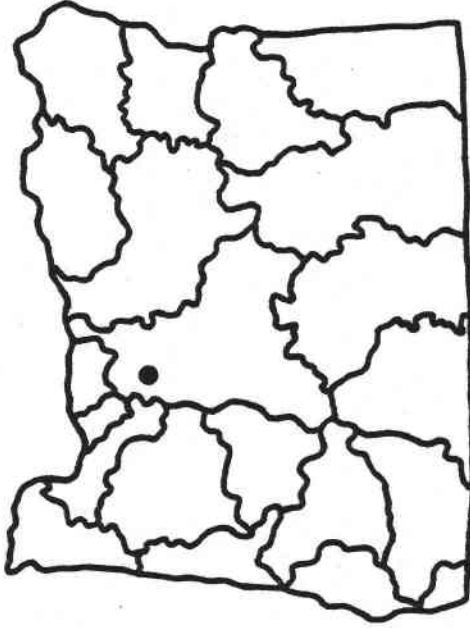
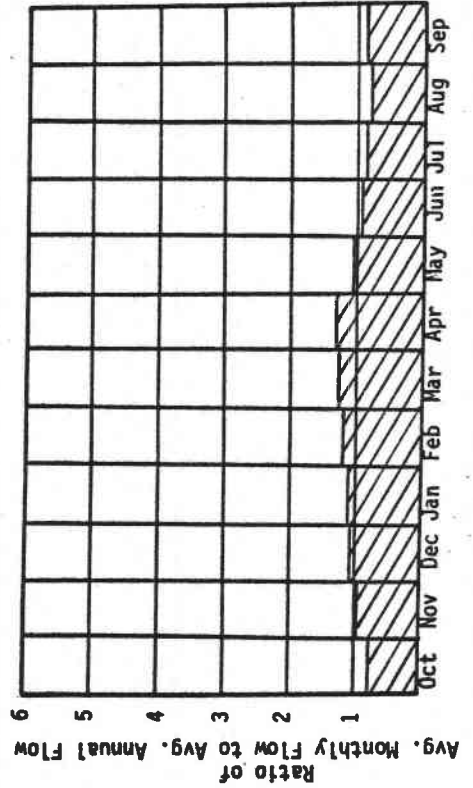
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	Ft. MSL
B. Downstream Elevation of Reach	Ft. MSL
C. Total Available Head in Reach	Ft.
D. Average Slope in Reach	Ft./Mi.
E. Drainage Area above Reach Mouth	Sq. Mi.
F. Inflow Classification	Natural

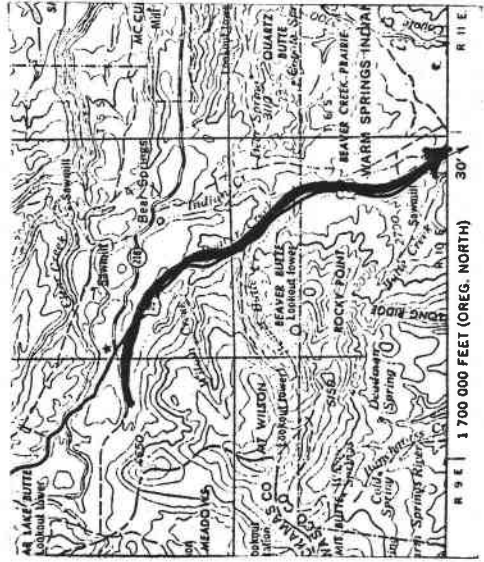
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 28.1 I	I .16 I	I 1.37 I	I 1.000 I
I 80 I	I 35.8 I	I .20 I	I 1.71 I	I .973 I
I 50 I	I 57.8 I	I .32 I	I 2.41 I	I .850 I
I 30 I	I 94.6 I	I .53 I	I 3.13 I	I .675 I
I 10 I	I 183.2 I	I 1.02 I	I 4.00 I	I .445 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND-THE DALLES



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-000-R0003

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 18, T8S, R12E
D. Latitude, Longitude	44° 52' N, 121° 21' W
E. Stream Name	Warm Springs River
F. Major Basin Name	Deschutes
G. River Mile	19.1 to 21.2

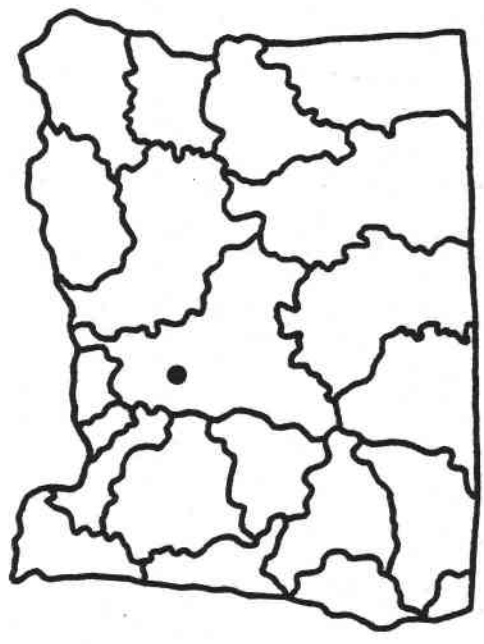
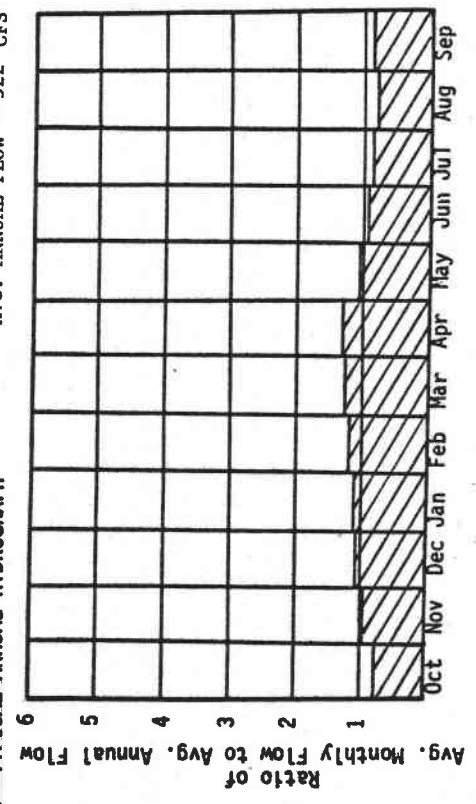
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2035	Ft. MSL
B. Downstream Elevation of Reach	1884	Ft. MSL
C. Total Available Head in Reach	151	Ft.
D. Average Slope in Reach	71.9	Ft./Mi.
E. Drainage Area above Reach Mouth	304.1	Sq. Mi.
F. Inflow Classification	Natural	

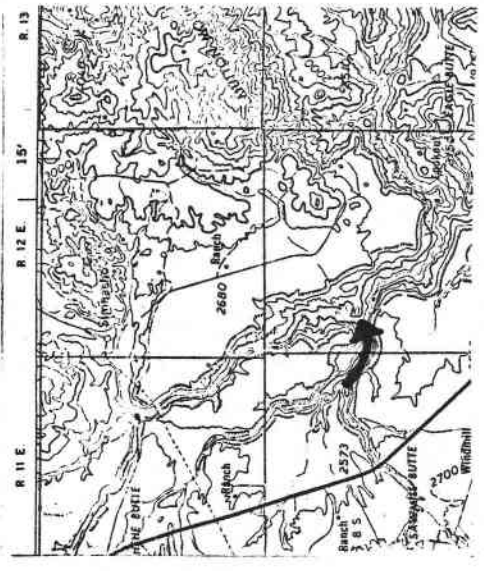
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 109.7 I	I 1.40 I	I 12.30 I	I 1.000 I
I 80 I	I 140.4 I	I 1.80 I	I 15.31 I	I .973 I
I 50 I	I 227.9 I	I 2.92 I	I 21.68 I	I .849 I
I 30 I	I 369.7 I	I 4.73 I	I 28.04 I	I .677 I
I 10 I	I 638.4 I	I 8.17 I	I 34.07 I	I .476 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-010-R0001

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 22, T8S, R11E
D. Latitude, Longitude	44° 52' N, 121° 25' W
E. Stream Name	Mill Creek
F. Major Basin Name	Deschutes
G. River Mile	0.0 to 6.0

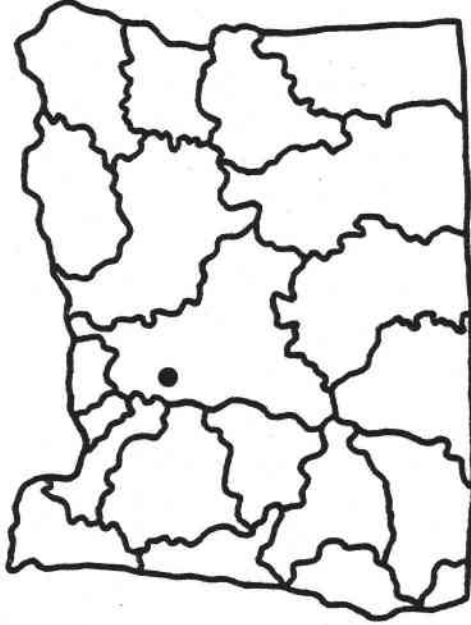
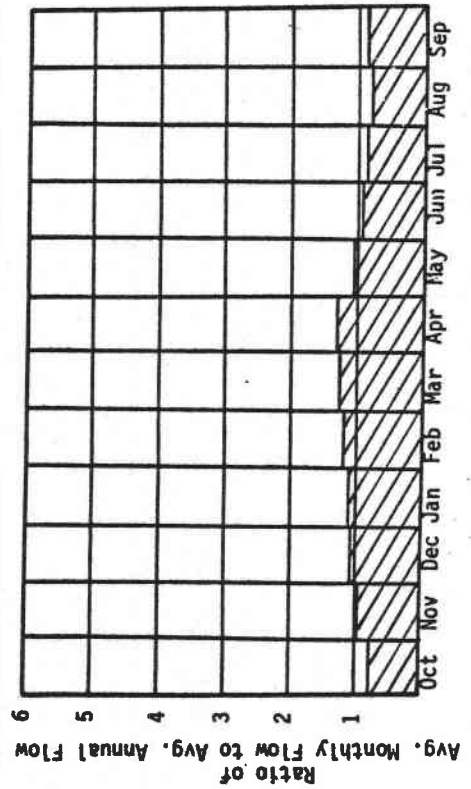
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2620	Ft. MSL
B. Downstream Elevation of Reach	1190	Ft. MSL
C. Total Available Head in Reach	1430	Ft.
D. Average Slope in Reach	238.3	Ft./Mi.
E. Drainage Area above Reach Mouth	106.5	Sq. Mi.
F. Inflow Classification	Natural	

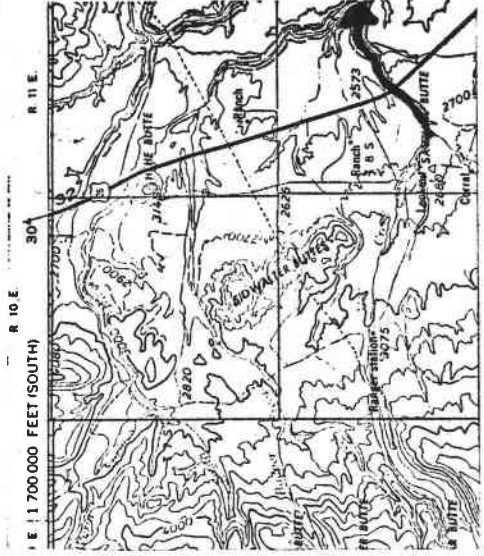
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 46.9 I	I 5.69 I	I 49.81 I	I 1.000 I
I 80 I	I 60.0 I	I 7.27 I	I 61.92 I	I .973 I
I 50 I	I 96.9 I	I 11.75 I	I 87.44 I	I .850 I
I 30 I	I 158.1 I	I 19.16 I	I 113.43 I	I .676 I
I 10 I	I 293.3 I	I 35.55 I	I 142.13 I	I .456 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-010-R0002

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 18, T8S, R10E
D. Latitude, Longitude	44° 52' N, 121° 35' W
E. Stream Name	Mill Creek
F. Major Basin Name	Deschutes
G. River Mile	6.0 to H.W.

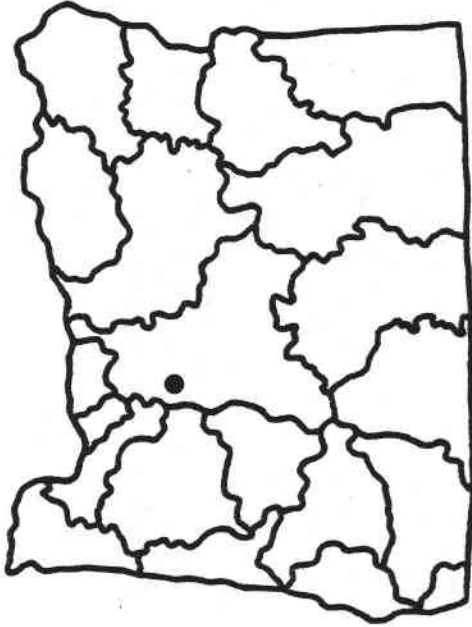
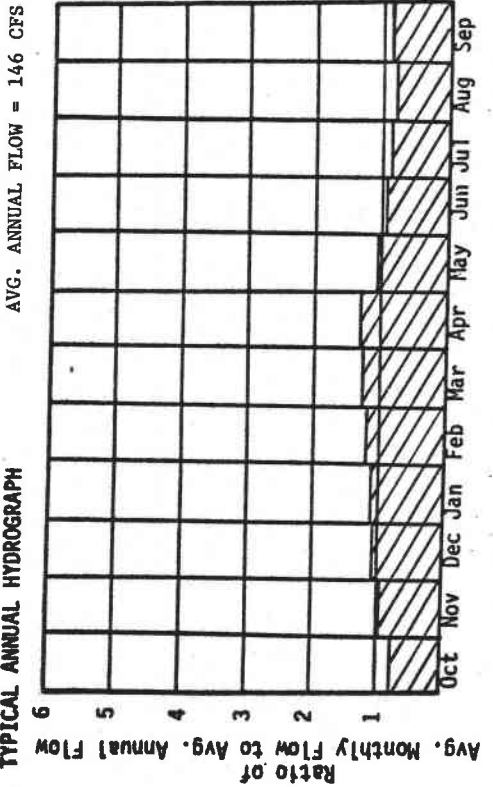
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach		Ft. MSL
B. Downstream Elevation of Reach		Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach		Ft./Mi.
E. Drainage Area above Reach Mouth	99.7	Sq. Mi.
F. Inflow Classification	Natural	

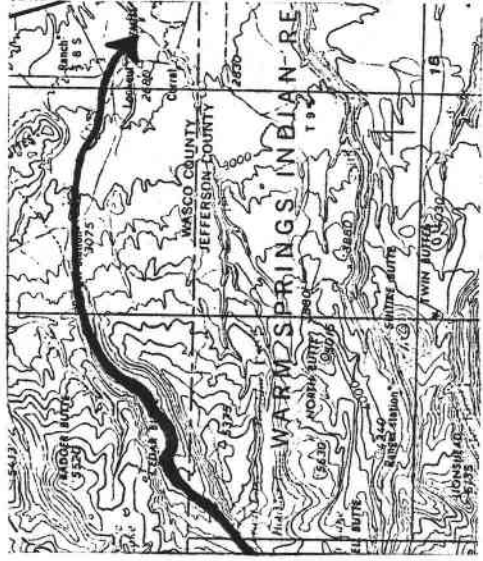
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 46.3 I	I .26 I	I 2.27 I	I 1.000 I
I 80 I	I 59.2 I	I .33 I	I 2.82 I	I .973 I
I 50 I	I 95.7 I	I .54 I	I 3.99 I	I .850 I
I 30 I	I 156.2 I	I .87 I	I 5.17 I	I .676 I
I 10 I	I 289.9 I	I 1.62 I	I 6.48 I	I .456 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-000-R0004

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 13, T8S, R11E
D. Latitude, Longitude	44° 53' N, 121° 23' W
E. Stream Name	Warm Springs River
F. Major Basin Name	Deschutes
G. River Mile	21.2 to 21.8

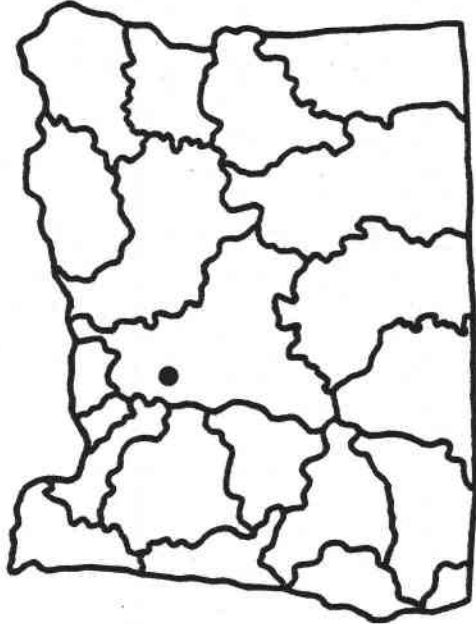
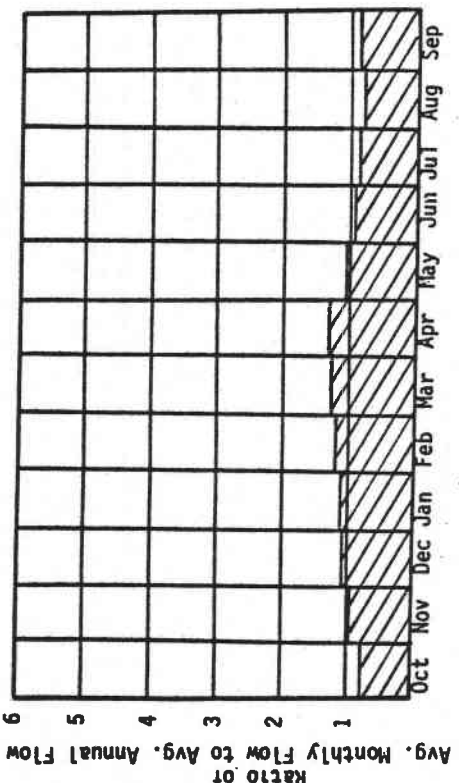
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2079	Ft. MSL
B. Downstream Elevation of Reach	2035	Ft. MSL
C. Total Available Head in Reach	44	Ft.
D. Average Slope in Reach	73.3	Ft./Mi.
E. Drainage Area above Reach Mouth	195.3	Sq. Mi.
F. Inflow Classification	Natural	

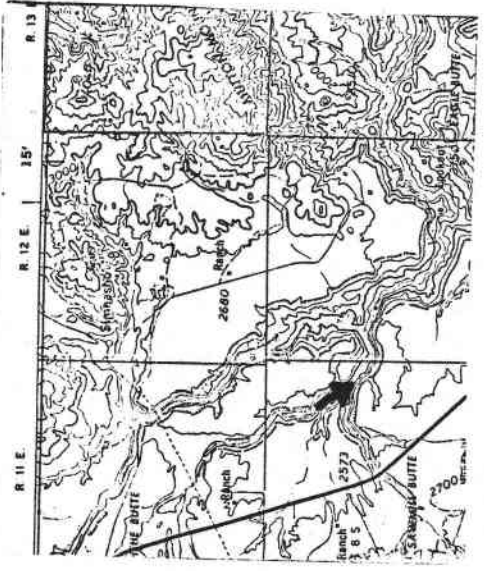
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 75.8 I	I .28 I	I 2.48 I	I 1.000 I
I 80 I	I 97.0 I	I .36 I	I 3.08 I	I .973 I
I 50 I	I 157.2 I	I .59 I	I 4.36 I	I .849 I
I 30 I	I 255.6 I	I .95 I	I 5.65 I	I .676 I
I 10 I	I 455.3 I	I 1.70 I	I 6.95 I	I .467 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-000-R0005

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 35, T7S, R1E
D. Latitude, Longitude	44°55'N, 121°24'W
E. Stream Name	Warm Springs River
F. Major Basin Name	Deschutes
G. River Mile	21.8 to 27.5

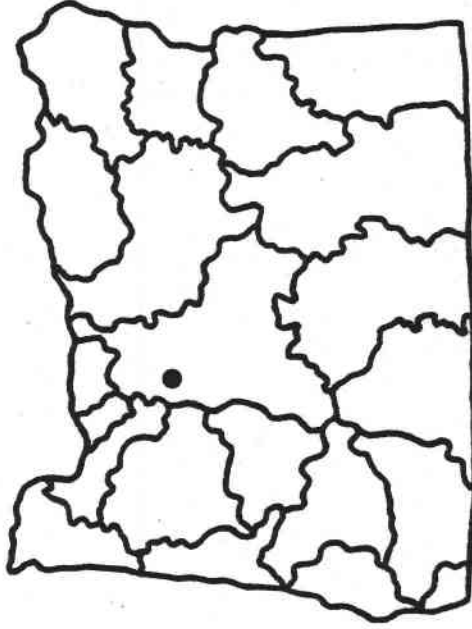
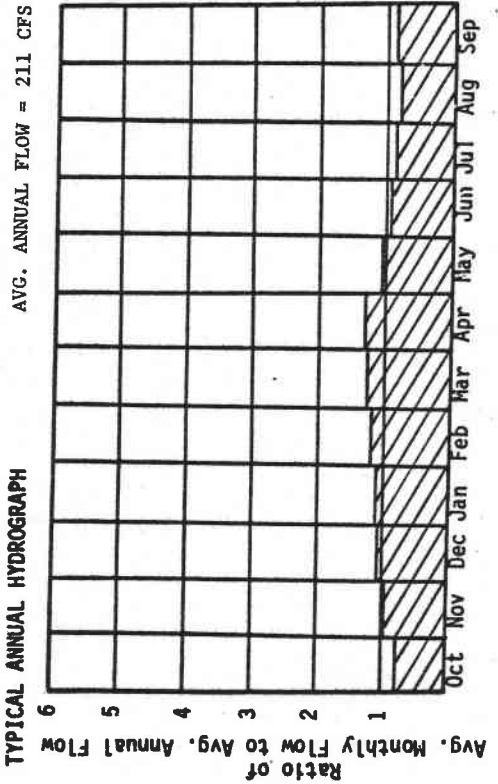
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2437	Ft. MSL
B. Downstream Elevation of Reach	2079	Ft. MSL
C. Total Available Head in Reach	358	Ft.
D. Average Slope in Reach	62.8	Ft./Mi.
E. Drainage Area above Reach Mouth	164.6	Sq. Mi.
F. Inflow Classification	Natural	

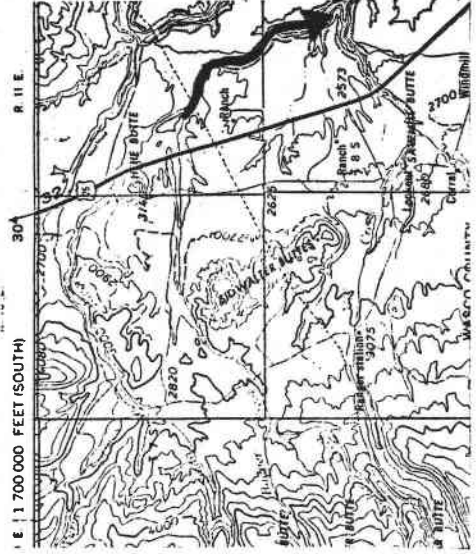
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 69.1 I	I 2.10 I	I 18.37 I	I 1.000 I
I 80 I	I 88.4 I	I 2.68 I	I 22.85 I	I .973 I
I 50 I	I 143.2 I	I 4.34 I	I 32.32 I	I .849 I
I 30 I	I 233.0 I	I 7.07 I	I 41.86 I	I .676 I
I 10 I	I 418.2 I	I 12.69 I	I 51.71 I	I .465 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-020-R0001

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	Sec. 21, T7S, R11E
D. Latitude, Longitude	44° 56' N, 121° 25' W
E. Stream Name	Badger Creek
F. Major Basin Name	Deschutes
G. River Mile	0.0 to H.W.

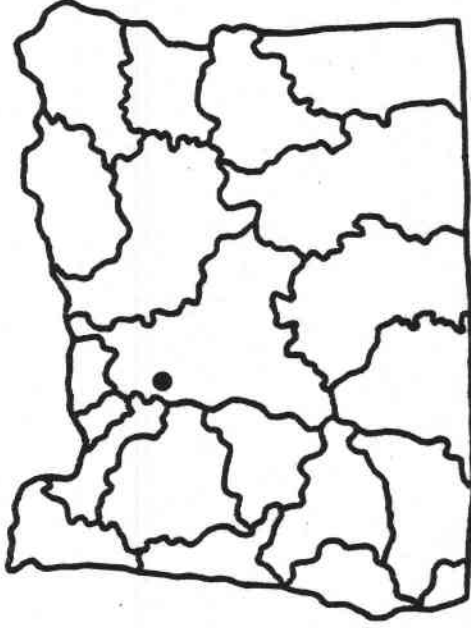
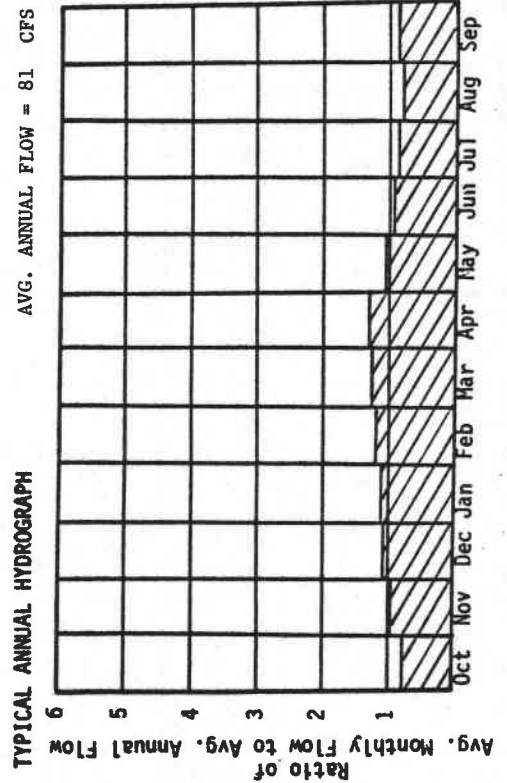
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach		Ft. MSL
B. Downstream Elevation of Reach		Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach		Ft./Mi.
E. Drainage Area above Reach Mouth	44.1	Sq. Mi.
F. Inflow Classification	Natural	

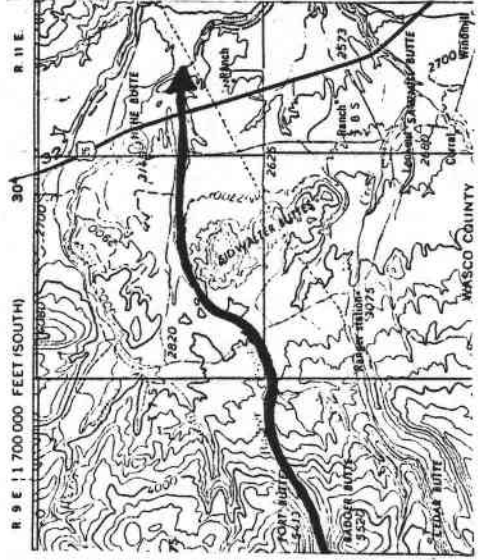
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I I
I 95 I	I 24.3 I	I .14 I	I 1.19 I	I 1.000 I
I 80 I	I 31.0 I	I .17 I	I 1.48 I	I .973 I
I 50 I	I 50.0 I	I .28 I	I 2.08 I	I .850 I
I 30 I	I 81.9 I	I .46 I	I 2.71 I	I .675 I
I 10 I	I 160.6 I	I .90 I	I 3.48 I	I .442 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-018-019-000-R0006

I. LOCATION

A. State	Oregon
B. County	Masco
C. Township, Range	Sec. 1, T7S, R10E
D. Latitude, Longitude	44° 59' N, 121° 30' W
E. Stream Name	Warm Springs River
F. Major Basin Name	Deschutes
G. River Mile	27.5 to 37.6

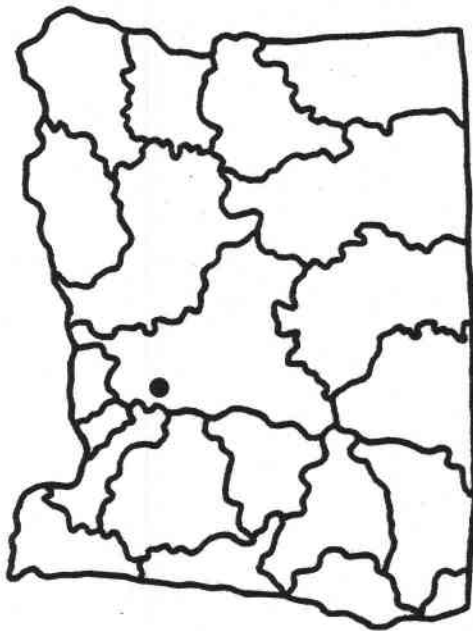
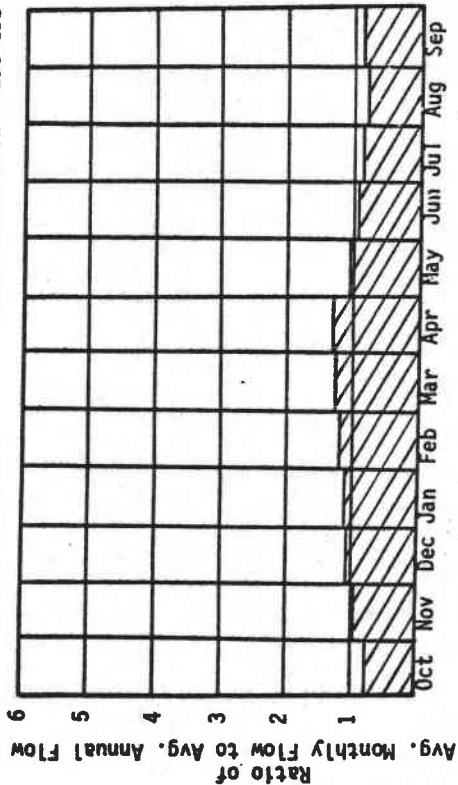
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2698	Ft. MSL
B. Downstream Elevation of Reach	2437	Ft. MSL
C. Total Available Head in Reach	261	Ft.
D. Average Slope in Reach	25.8	Ft./Mi.
E. Drainage Area above Reach Mouth	112.6	Sq. Mi.
F. Inflow Classification	Natural	

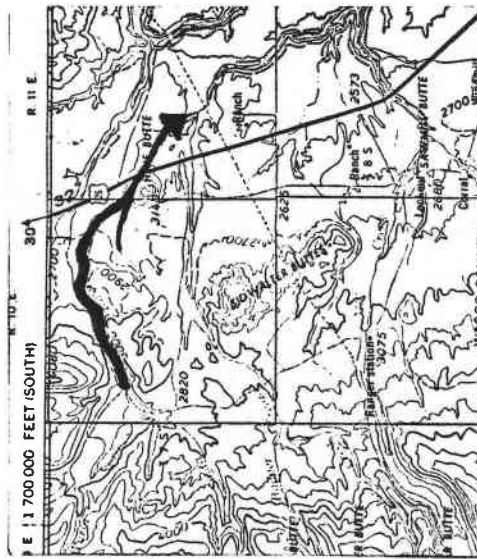
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 49.8 I	I 1.10 I	I 9.65 I	I 1.000 I
I 80 I	I 63.7 I	I 1.41 I	I 12.00 I	I .973 I
I 50 I	I 103.0 I	I 2.28 I	I 16.95 I	I .850 I
I 30 I	I 167.9 I	I 3.71 I	I 21.98 I	I .676 I
I 10 I	I 309.9 I	I 6.85 I	I 27.48 I	I .458 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-000-R0007

I. LOCATION

A. State	Oregon
B. County	Wasco
C. Township, Range	T7S, R9E
D. Latitude, Longitude	44° 58' N, 121° 36' W
E. Stream Name	Warm Springs River
F. Major Basin Name	Deschutes
G. River Mile	37.6 to 40.6

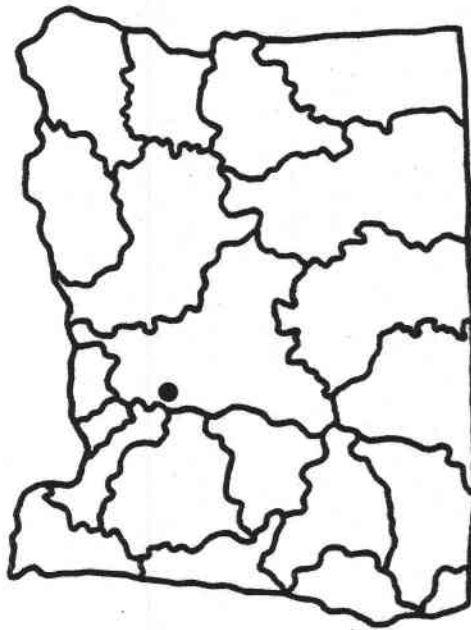
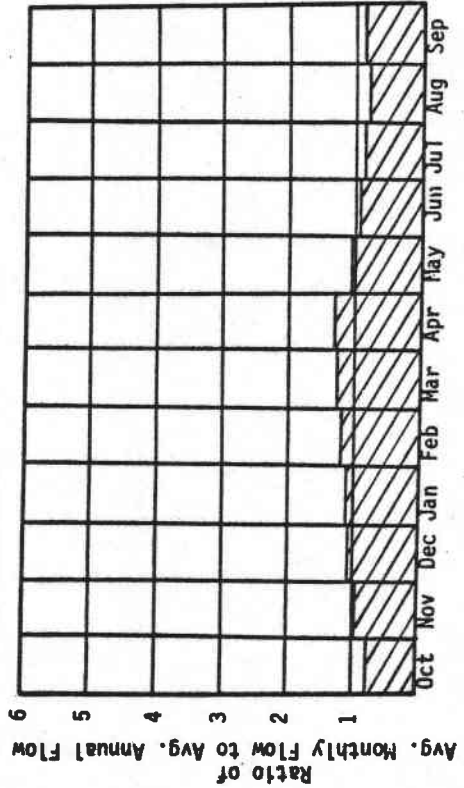
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	2791	Ft. MSL
B. Downstream Elevation of Reach	2698	Ft. MSL
C. Total Available Head in Reach	93	Ft.
D. Average Slope in Reach	31	Ft./Mi.
E. Drainage Area above Reach Mouth	67.5	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 34.9 I	I .27 I	I 2.41 I	I 1.000 I
I 80 I	I 44.5 I	I .35 I	I 2.99 I	I .973 I
I 50 I	I 71.9 I	I .57 I	I 4.22 I	I .850 I
I 30 I	I 117.4 I	I .93 I	I 5.48 I	I .675 I
I 10 I	I 223.4 I	I 1.76 I	I 6.94 I	I .450 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-500-180-019-000-R0008

I. LOCATION

A. State	Oregon
B. County	Maaco
C. Township, Range	T7S. R9E
D. Latitude, Longitude	44° 58' N, 121° 38' W
E. Stream Name	Warm Springs River
F. Major Basin Name	Deschutes
G. River Mile	40.6 to H.W.

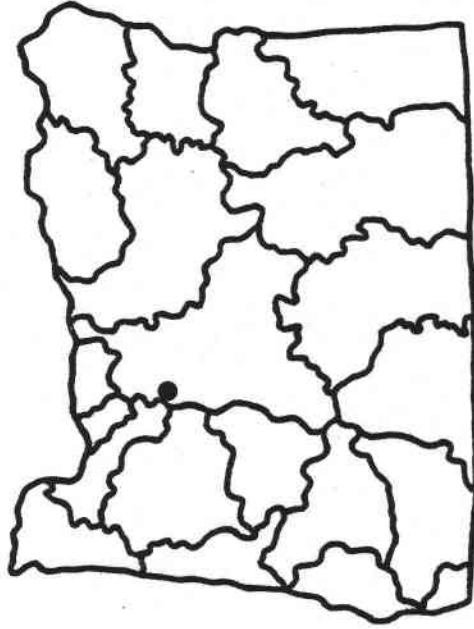
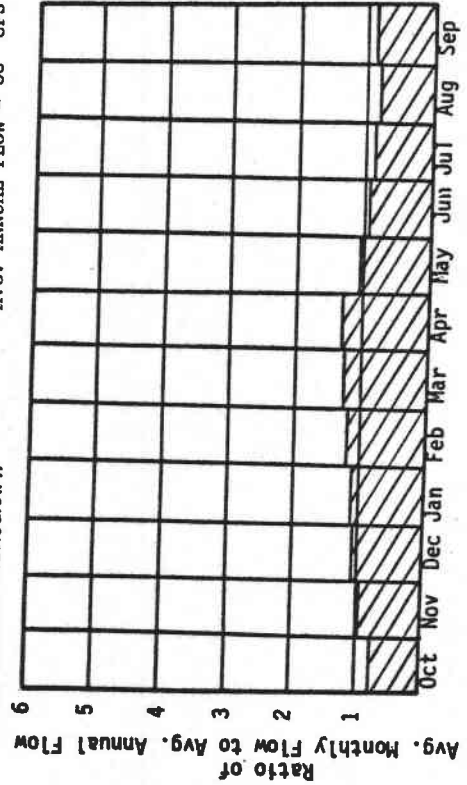
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach		Ft. MSL
B. Downstream Elevation of Reach		Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach		Ft./Mi.
E. Drainage Area above Reach Mouth	42.2	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 26.5 I	I .15 I	I 1.30 I	I 1.000 I
I 80 I	I 33.8 I	I .19 I	I 1.61 I	I .973 I
I 50 I	I 54.6 I	I .31 I	I 2.27 I	I .850 I
I 30 I	I 89.3 I	I .50 I	I 2.95 I	I .675 I
I 10 I	I 173.9 I	I .97 I	I 3.78 I	I .444 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: BEND-THE DALLES

